BRITAIN'S BIGGEST AND BEST-SELLING AMIGA MAGAZINE

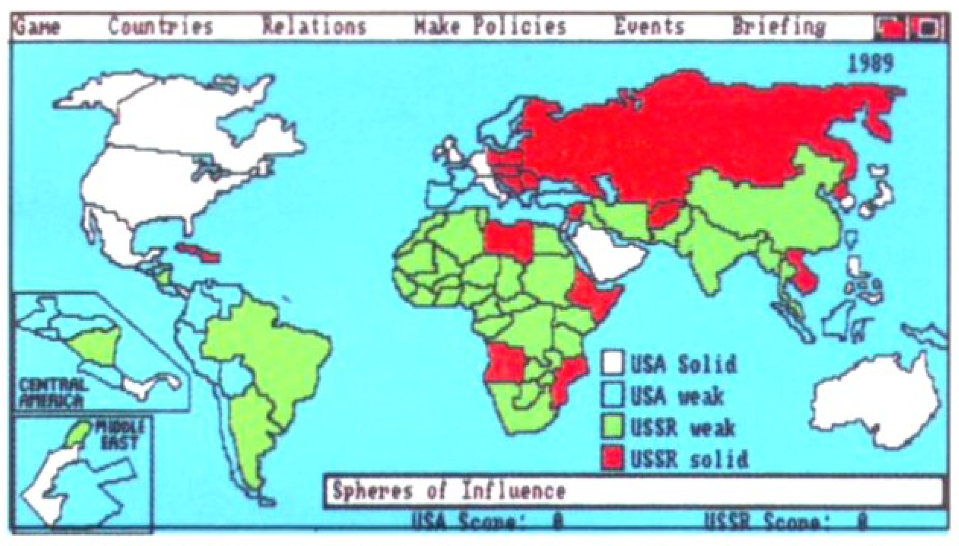
AMIGA FORMAT

ISSUE 23 ■ JUNE 1991 ■ £3.95

BALANCE OF POWER 1990
It's a classic – and it's yours!

FULL GAME!

BALANCE OF POWER



AMIGA FORMAT

COMPLETE £24.99 GAME!

"Superb stuff that can make weekends disappear." *AF* Issue 19

Full game guide on page 25

COVER DISK 23

AMIGA FORMAT

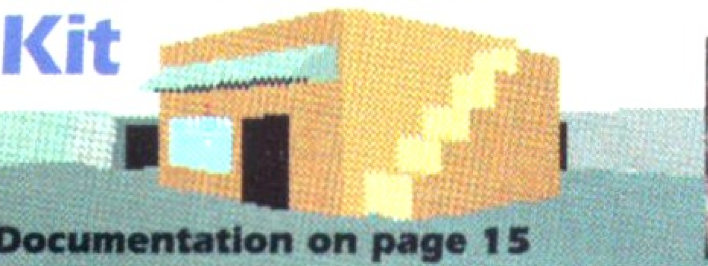
Atomino Look forward to hours of fun with this excellent playable puzzle game demo from Psygnosis

DrivelFF - Make your own fun with a race game where you create the courses

Hacktrick.60Hz - Play any game 10% faster!

Your chance to explore for yourself the world of 3D, with Domark's useable demo of Incentive's Freescape game creation system

3D Construction Kit



Pic of the Month The many faces of madness...!



Documentation on page 15

NO COVERDISKS?
THEN ASK FOR THEM FROM YOUR NEWSAGENT

The whole truth about 3D

DISCOVER the secrets of 3D games
DECIDE with our guide to 3D graphics
DARE to take on Cybercon III, latest 3D classic from the Assembly Line

- GAME GREATS: Gods, Secret of Monkey Island, Viz and Predator 2 hit the screen
- EMULATION: you can own a BBC or PC
- SUPERBASE 4: a step up for databases?
- GRAPHICS: three brand-new 3D modellers

13 Pages of hints, tips and advice
Workbench p201
Gamebusters p109
Beginners p213

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ERIOR SPECIES

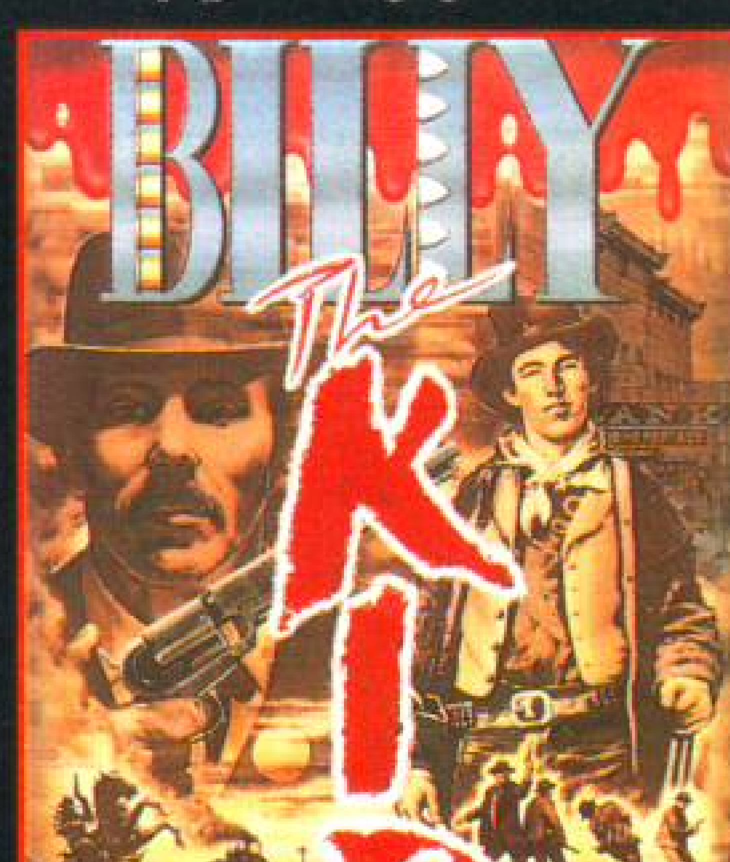
THE RIGHT STUFF

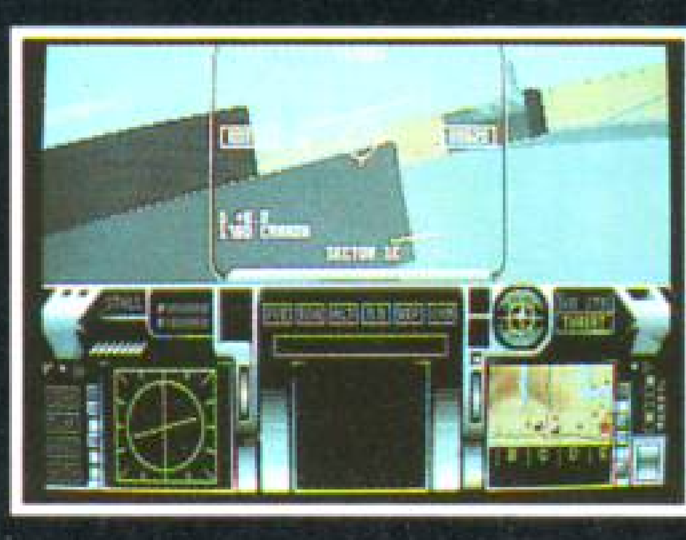
F 29 Retaliator presents the fastest and most detailed graphical enviroment ever seen in a flight simulator. This is the only flight simulation to provide 100 complex missions over four intense battle senarios. The only flight simulation to provide detailed daily war update reports. The only flight simulation to present the latest in aerodynamic technology introducing ECOP cockpits, backwinder AAMS, supercruise, stealth and more! F29 Retaliator is that flight simulation.

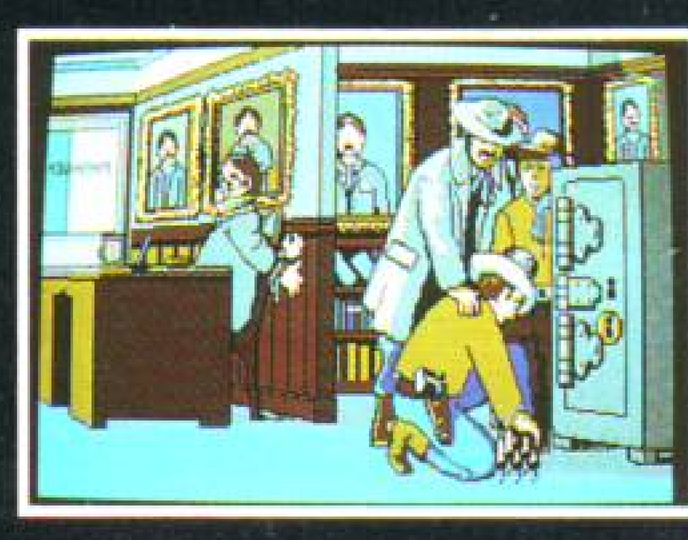


GUN LAW

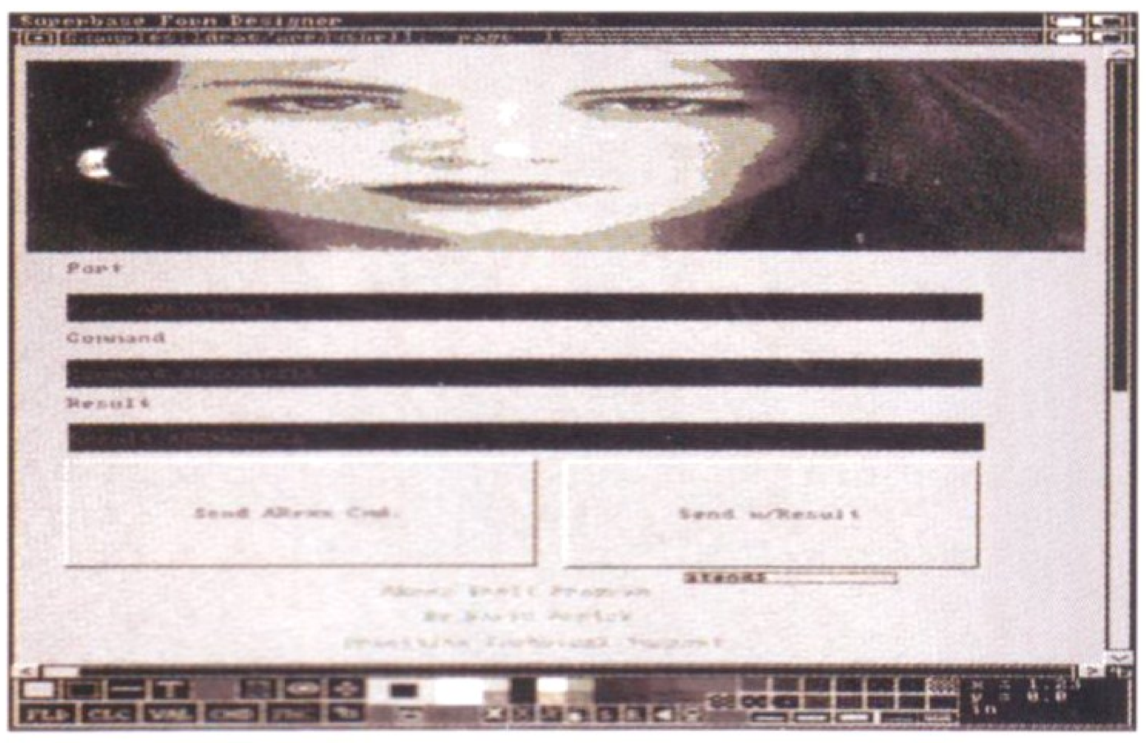
"BILLY THE KID" is a one or two player action/strategy game set in the Wild West, which allows the player to assume the identity of either a gun totting desperado with a heart of gold , Billy himself or his ex-best friend, sharp shooting, law abiding pillar of the community, Sheriff Pat Garrett. They are in love with the same woman and ultimately, in a nail biting climatic finale, are going to end up pointing guns at each other. Only one character can walk away from this showdown BUT THAT'S JUST THE WAY OF THE WEST





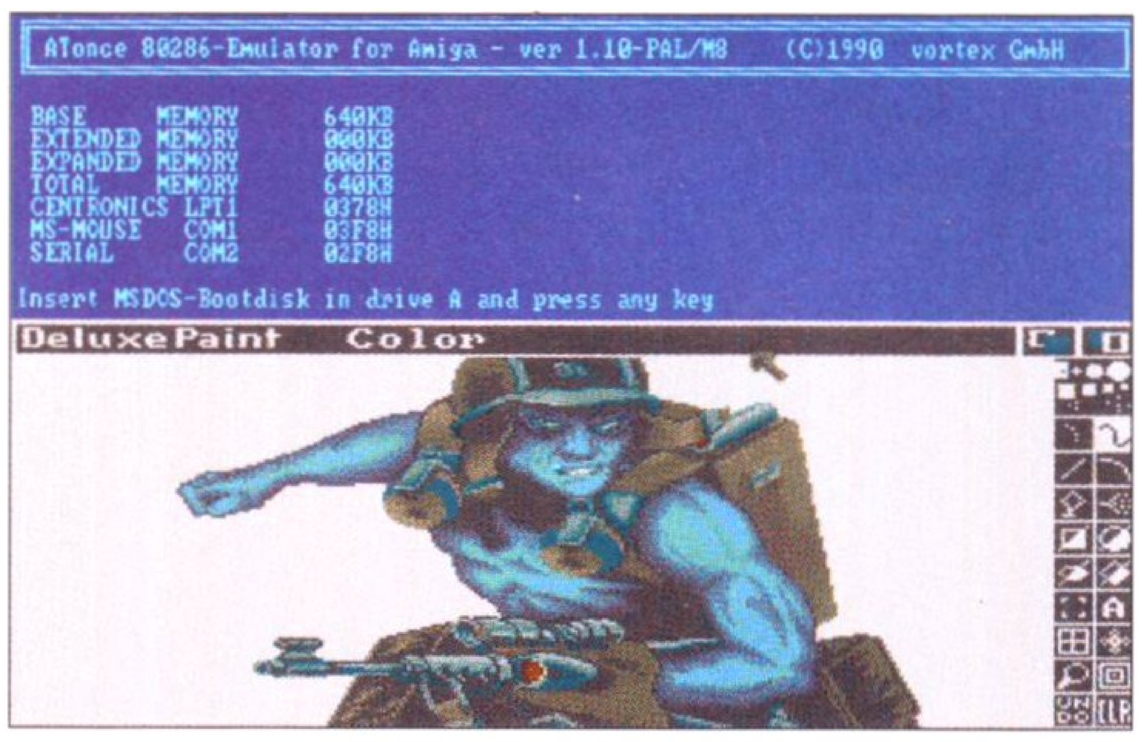


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Superbase 4 164

Could this be the ultimate database?



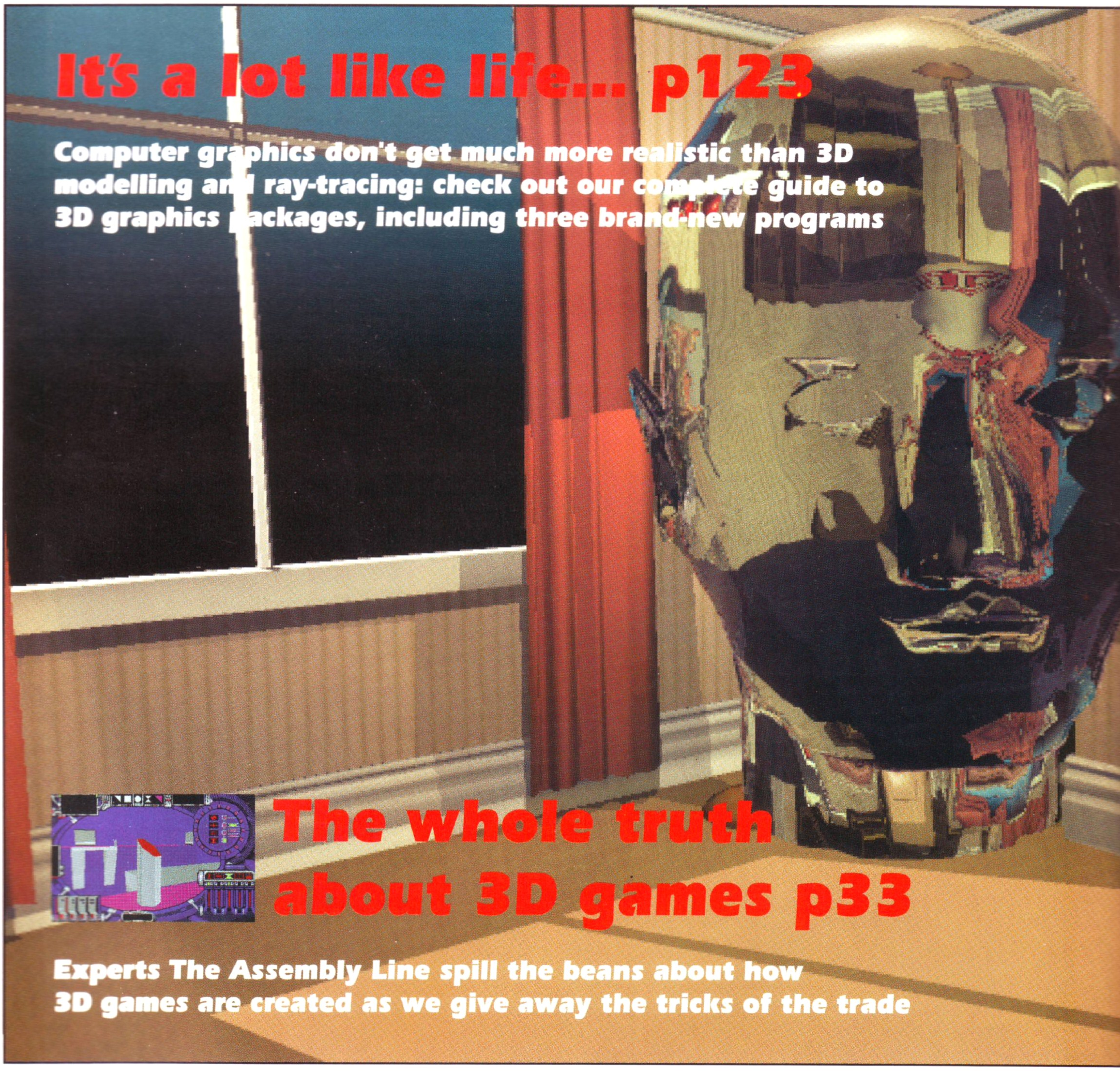
ATonce PC Emulator 155

For mixing business with pleasure



BBC Emulator 160

Answer to your educational prayers?



It's a lot like life... p123

Computer graphics don't get much more realistic than 3D modelling and ray-tracing: check out our complete guide to 3D graphics packages, including three brand-new programs

The whole truth about 3D games p33

Experts The Assembly Line spill the beans about how 3D games are created as we give away the tricks of the trade

AMIGA FORMAT 23 JUNE 1991

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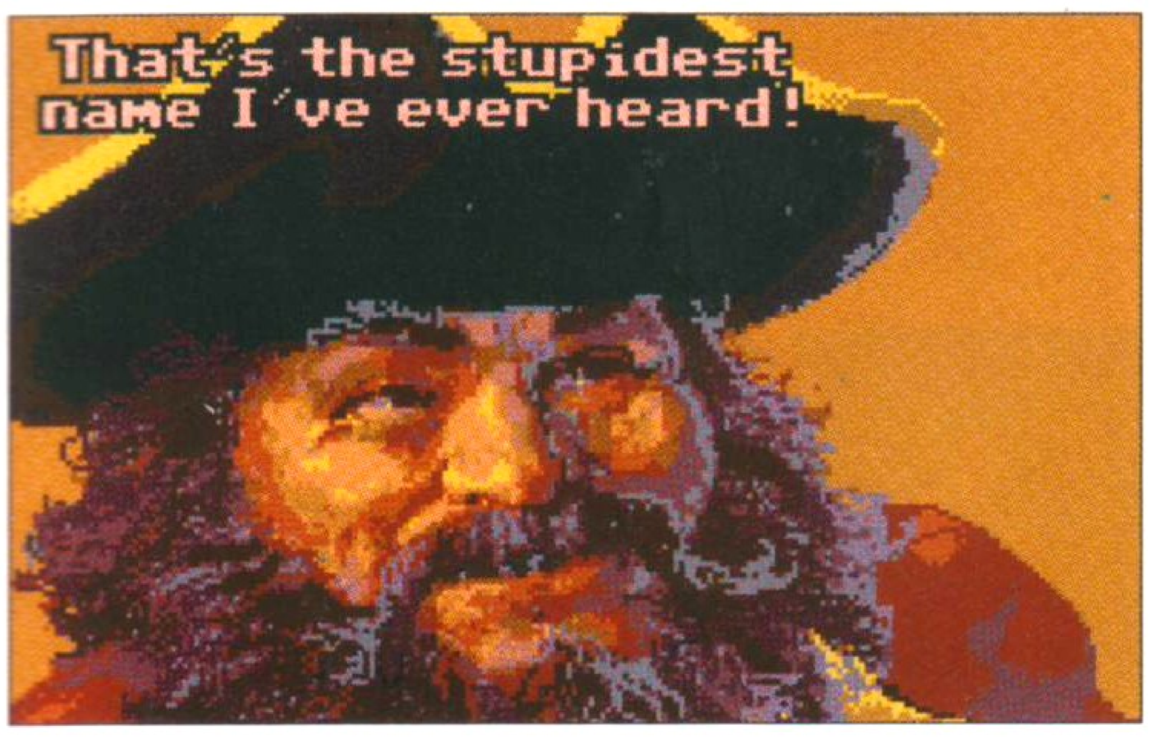
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If you read Amiga Format every month, why not make sure of your copy by getting it delivered straight to your door? See Page 174 for details!

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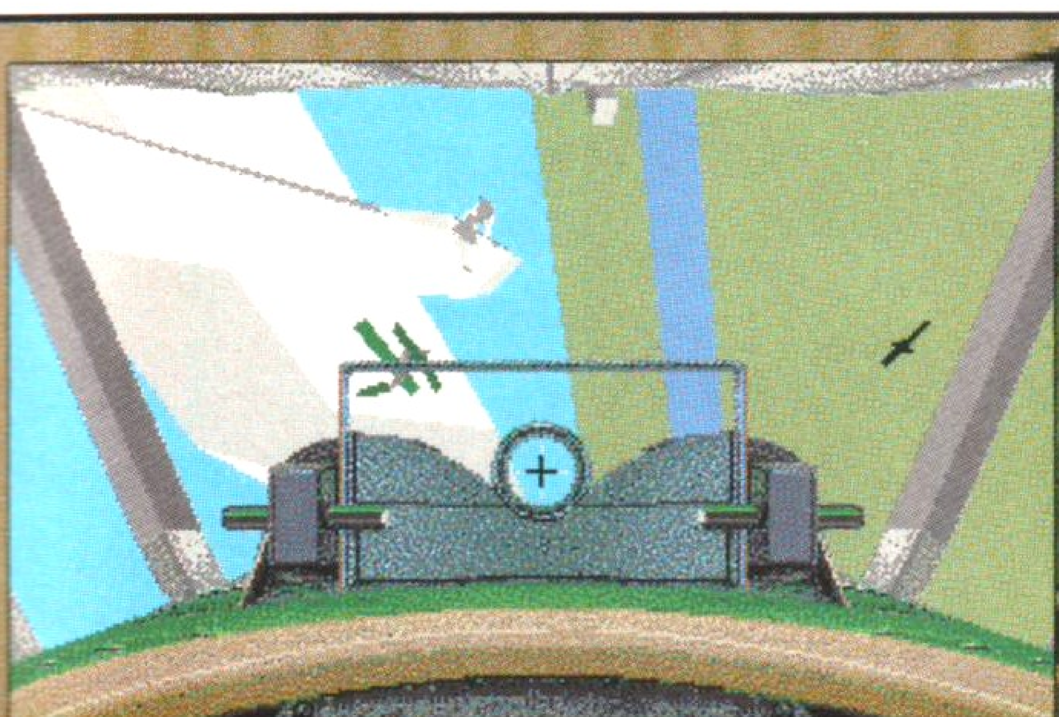
Take advantage of our Mail Order bargains. See the Special Offers details on Page 198 of this issue!

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Monkey Island 74

Swash some buckle and tickle some rib!



Aces 59



Chuck Yeager 60



Cybercon 82



Das Boot 98

Future PUBLISHING

Quote of the month: "There are dreams, there is reality, and between them lie the doors of perception"

ABC
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81,234 July - Dec 1990

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REVIEWS

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3D CONSTRUCTION KIT – I never knew there was so much in it! The secrets of the Fresscape 3D games creating system are put in your hands by Incentive and Domark. Play with the elements of your own 3D world.

ATOMINO – Whiz for Atoms! Psygnosis' new puzzle game will give you many a happy hour constructing molecules. Watch the co-valent bondage!

DRIVE IFF – Make your favourite IFF file into a race-track. This very amusing little game allows you to design your own courses and tweak how they play.

PIC OF THE MONTH – Self-portrait of one Mr Rubberface in fabulous panchromatic monochrome.

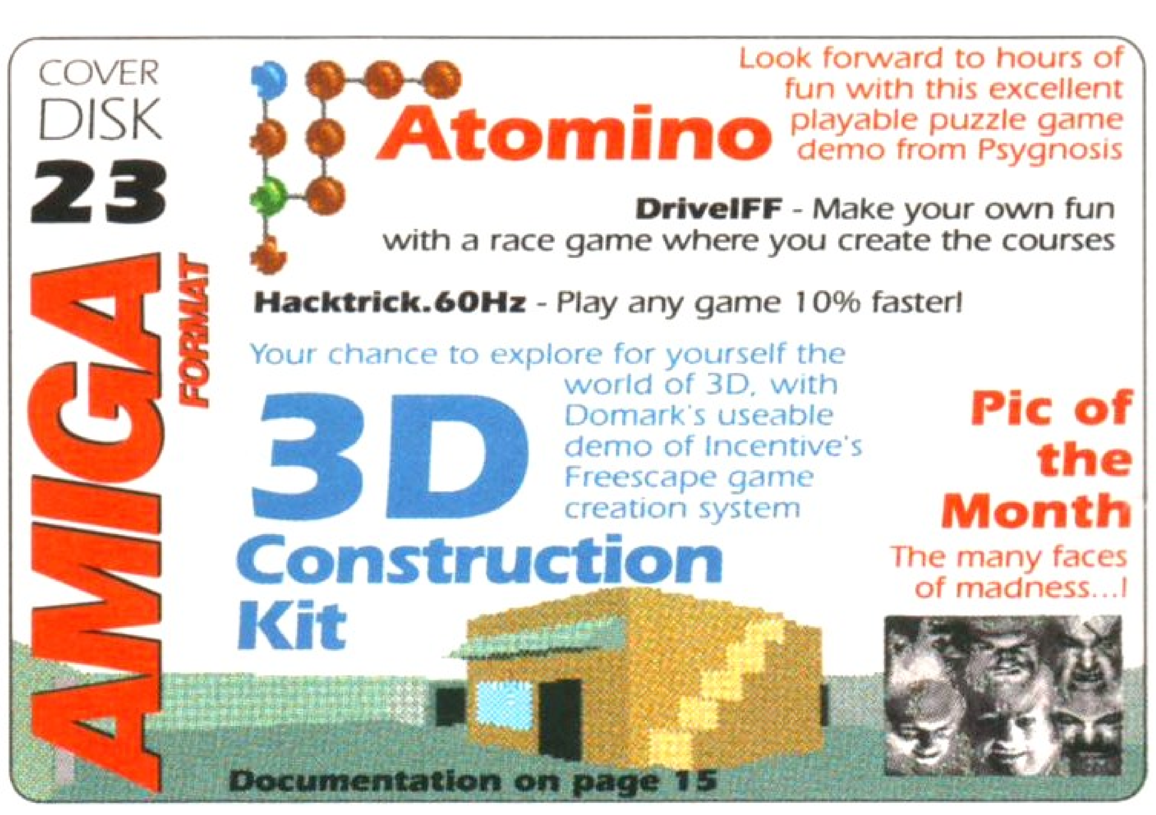
HACKTRICK.60HZ – It's a bit unusual, but it works! Simply boot up your Amiga into 60Hz mode and you can play games just that important bit faster.

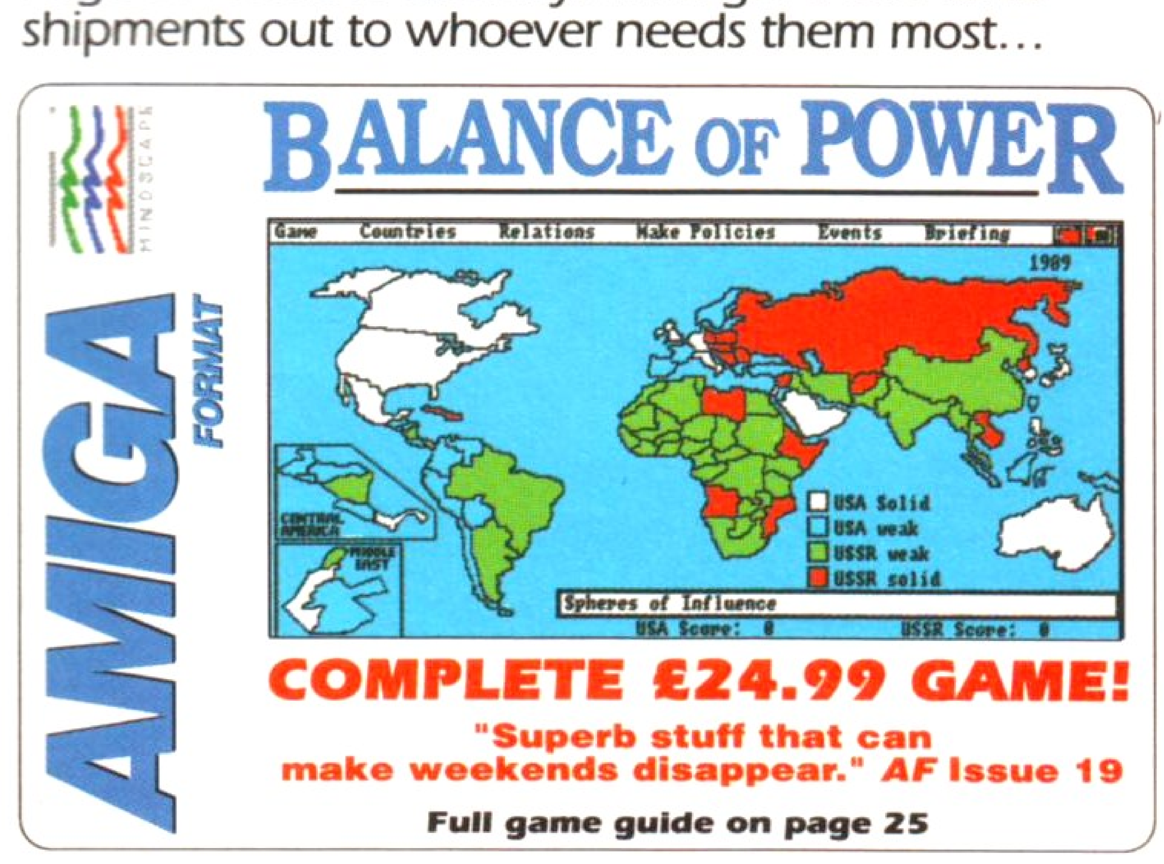
BALANCE OF POWER 1990 – This is a classic, it's still selling at £24.99 a copy and we're giving it to you for just the price of a blank disk.

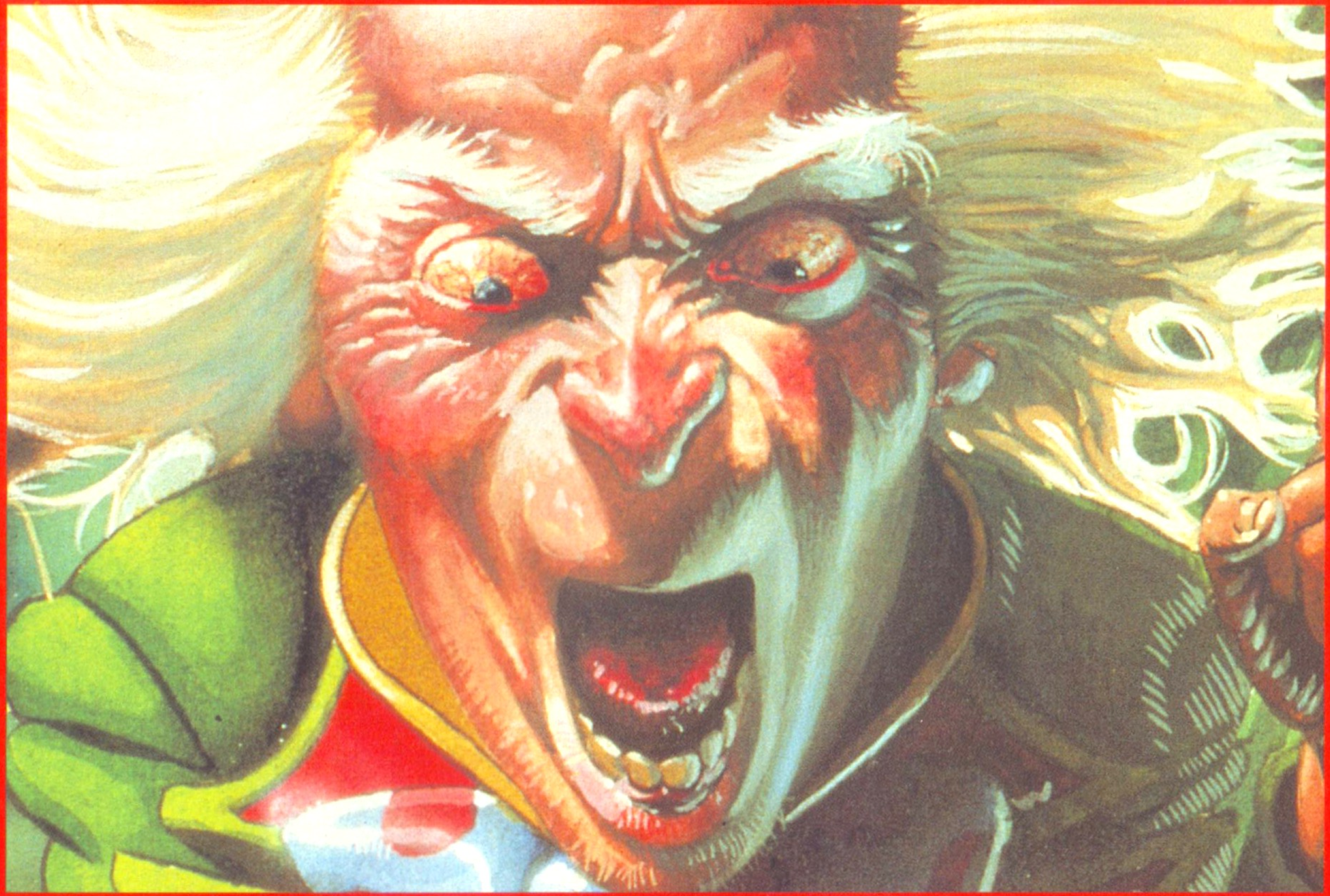
You are the leader of one of the two Superpowers, the Soviet Union or the United States of America, in the cold war days of the 1990s. Your task is to increase your political power and influence in the world by subtle military and economic action, all the while avoiding confrontation with the opposing superpower.

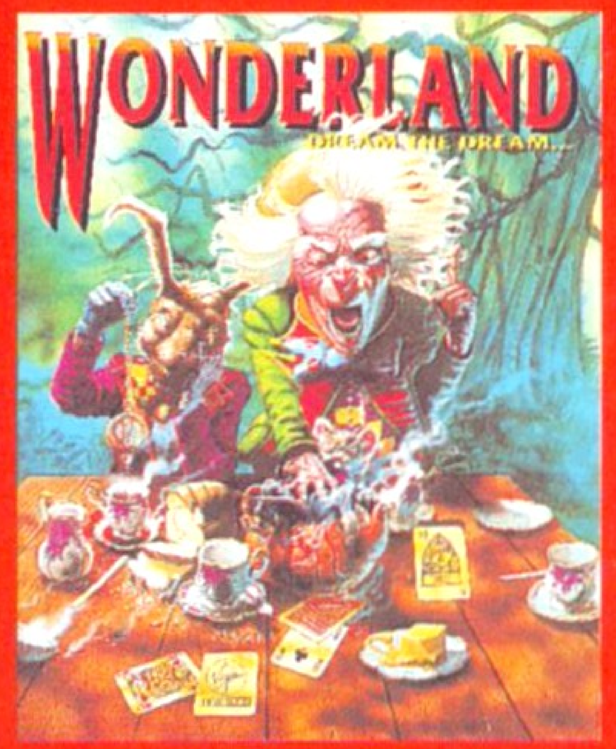
If you push your luck too far, you could end up at Defcon1: all-out nuclear war. There are no prizes for destroying the world: all you have to look forward to then is about 30 seconds of intense pleasure before you become part of the biggest microwave meal in history.

The complete guide to how to play starts on Page 25. Read it carefully: then get those arms shipments out to whoever needs them most…



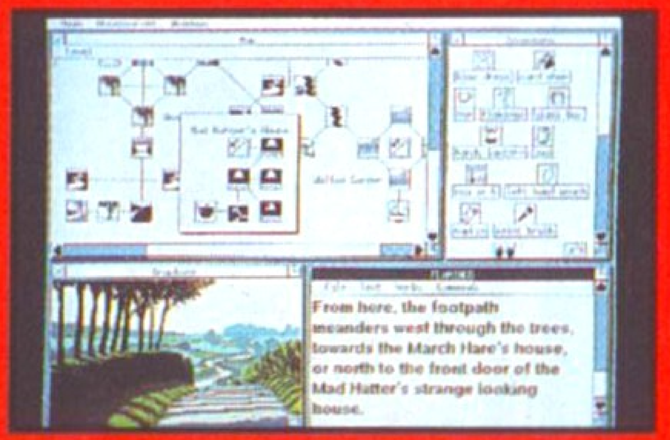




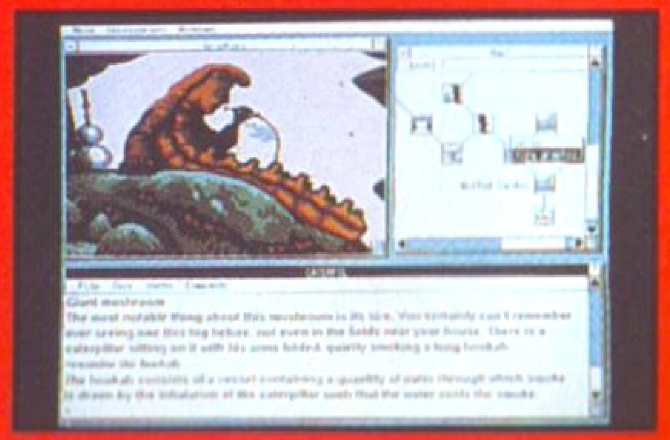


ANYTHING CAN HAPPEN TO YOU IN WONDERLAND...

IF YOU DON'T WAKE UP!









Virgin GAMES CONCEPTS IMMACULATE

Magnetic Scrolls

WONDERLAND IS NOW AVAILABLE ON
IBM PC • AMIGA • ATARI ST • ARCHIMEDES

Indy Jones is back! Eh???



US Gold have announced the game of the fourth Indiana Jones film — even though there is no fourth film! The new Indy romp is being worked on by Lucasfilm and the plot for the game has been approved by George Lucas and Steven Spielberg, so quality is assured.

Sheer joy for flight sim fans

Voltmace's Delta 3A is a smart-looking analogue stick designed to be held comfortably in the hand and ideal for the armchair flight-simmer who doesn't wish for the extra degree of realism afforded by a yoke. Voltmace 0462 894410.



CDTV launches

Amiga CD ROM drive imminent



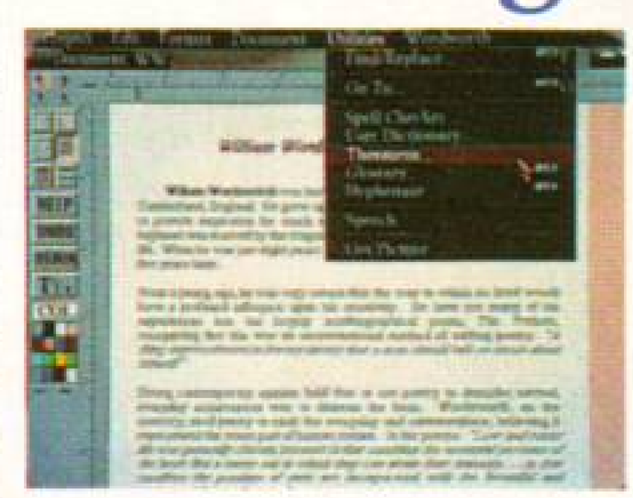
The Commodore CDTV is now a reality. Due to go on sale in the shops mid-May, it is practically assured of being available in high-street chains in the next couple of weeks.

Commodore's combination of Amiga and CD player, which promises to bring a new standard of friendliness and depth to home entertainment, was officially launched to the press and distributors on April 30th. Initially its distribution will be carefully controlled, selling through major retail outlets rather than through computer suppliers. The price is confirmed to be the lower £599 which Commodore had been hoping to achieve.

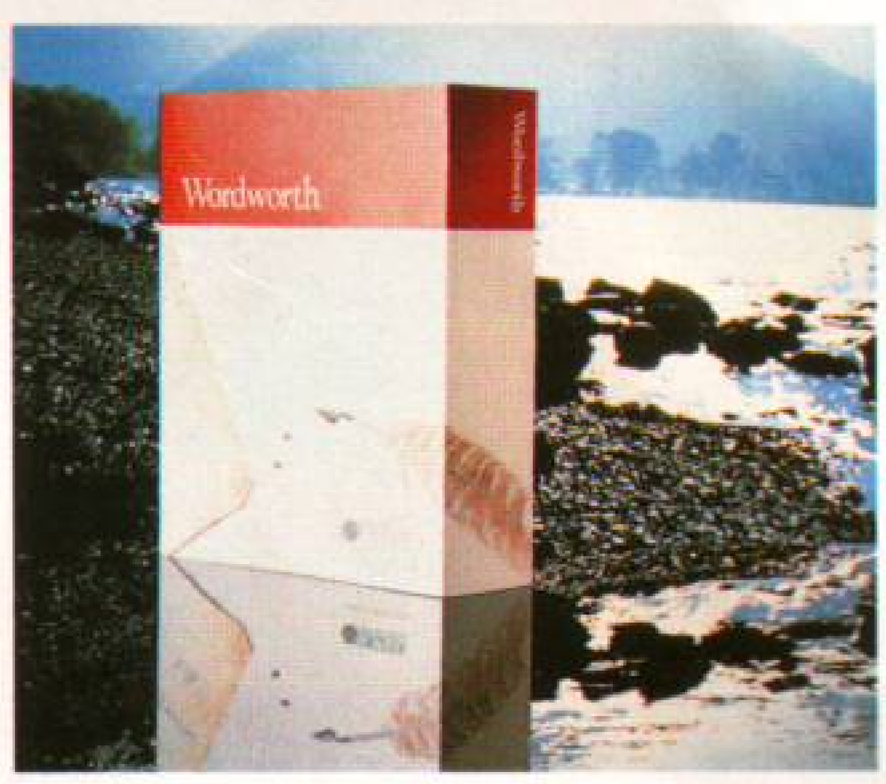
Whether or not the CDTV sells depends partly on the success of the software, so Commodore are keen to promote the sale of the Amiga add-on CD drive which will allow A500 owners to play CDTV discs. Amiga Format has seen photographs of the prototype drive and, though production versions have not yet appeared in this country, its arrival is now a matter of weeks.

Will CDTV software be as good as we all hope? Read all about it first in next month's Amiga Format, where a special feature will look at all the software that is ready for launch with the machine.

Romantic word processing?



The new word processing program from Digita, *Wordworth* promises not only to bring a flavour of the romantic poets but also a touch of class borrowed from the sturdy friendliness of Macintosh software. *Wordworth* boasts the smart look of Workbench 2, even on a Kickstart 1.3 Amiga, and has clearly had a great deal of thought put in to make it as useable as possible. It will flow text round graphics as well as operating at a good speed, and it also features custom fonts named after such poetic greats as Keats, Byron and Shelley. All you'll be left to do is write about daffodils and die at an early age. Expect us to be waxing lyrical on its merits next month. Digita 0395 270273.



CD ROM CONFERENCE



CDTV and the technology of which it is but an offshoot will play a major part at the UK's first big CD-ROM conference, CD-ROM Europe 91, which is to be held at the Novotel in Hammersmith, London from the 21st-23rd May. Other topics covered include the Philips CDI system, ready for a mass market launch next year, along with many seminars on standards and methods. Agestream 0733 60535

VAT increase hits game prices

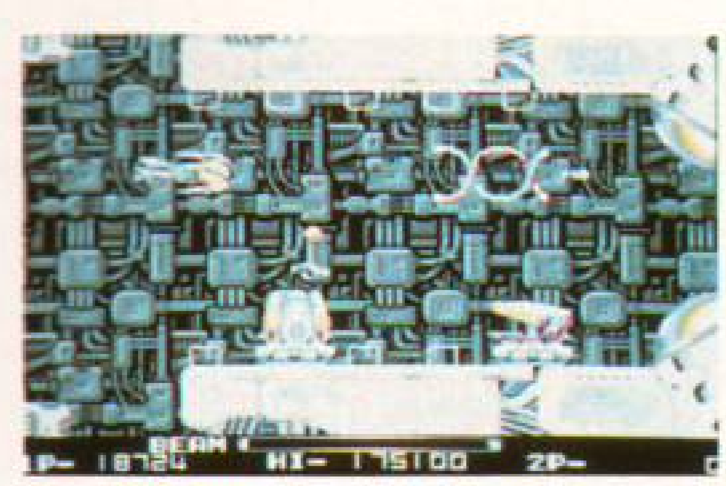
The rise in VAT from 15% to 17.5% will put an average of 60p on the recommended retail price of a game. None of the prices quoted in this issue account for the new VAT rate, but new prices will be peculiar sums: £30.74 instead of £29.99, for instance. As far as we know no software houses intend to absorb the increase, though your local retailer may well do so.

Deuteros, Hunter, R-Type 2 survive demise of Activision

After many recent tribulations, Activision UK has been bought out by The Disc Company in France. This brings the very good news that excellent recent games such as *Deuteros* (Format Gold in Issue 21) and *Hunter* (86% in Issue 20) will now definitely be released and will appear in the shops very soon. It also ensures the survival of the games currently under development at Activision, including arcade classic follow-up *R-Type 2*.







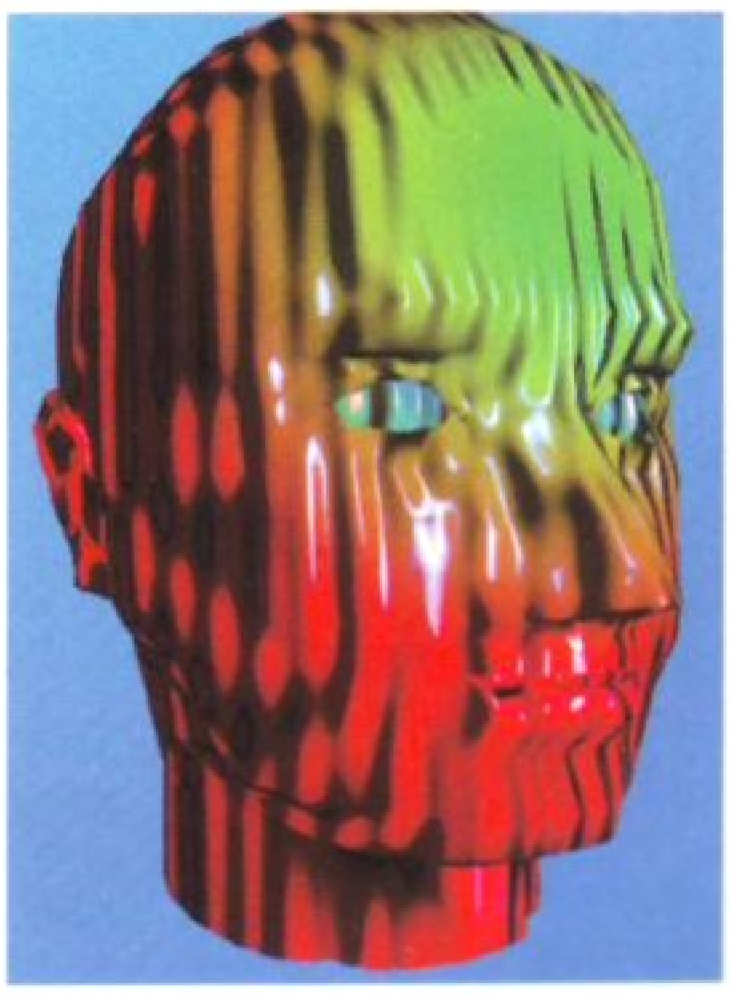






HAM-E

24-bit graphics for the rest of us



Amiga 24-bit colour: images of this quality form a board costing £300?

HAM-E is a new mode in Amiga graphics that will give you access to the wonders of 24-bit colour at a low price. Although not 'true colour' in the technical sense, it will allow the display of over 200,000 colours on the screen and, what's more, can be run without porblems as compatible with any software.

The system, developed by Black Belt in America and sold exclusively through Checkmate in the UK, involves a hardware add-on that is almost uniquely compatible with almost any hardware and software.

It provides a 256-colour display mode from a 24-bit palette, as well as a fancy new version of HAM that allows a 262,000-colour display. It also includes software such as a paint package and an image processing system of which we have excellent reports and is available in a highly sophisticated anti-aliased version for a little extra.

Prices? £299 for the standard model, £399 for the advanced. A mere trifle compared with 24-bit. Expect extensive coverage soon. Checkmate 071 923 0658.

HYPERBOOK PRICE LOWER

The price of Gold Disk's excellent Hyperbook multimedia application generator, reviewed in Issue 21, is in fact a good deal lower than we said it was then at £69.95 rather than £100. The error arose in a straight dollar-to-pound translation and we do apologise. Don't let that complicated description confuse you, either: Hyperbook is a very simple way of creating presentations and computerised 'books' and is available from HB Marketing (0753 686000), Precision (081 330 7166) and Silica (081 309 1111).



Hyperbook: high-value multimedia creator, and friendly with it.

Computer health worries?

We get a lot of letters from people voicing concerns about the safety of computer screens, so we thought you might benefit from RoSPA's health and safety exhibition at the NEC, Birmingham on June 18th-20th. More details from RoSPA, 021 200 2461.

Geographic: cause for concern

Reports in our sister magazine *New Computer Express* reveal that Geographic, responsible for the *Door-to-Door* routefinder, have ceased trading under highly suspicious circumstances. They can no longer be contacted at their address or phone number. the route planning software they sold to unwitting customers has proved woefully inadequate and they so far appear to be shirking their legal obligation to provide refunds.

Anyone who has bought *Door-to-Door* and is seeking a refund should contact Bradford Trading Standards Office on 0532 536111. *Amiga Format* has introduced a policy of not mentioning products in its news pages unless we know the pedigree of the product or company concerned.

Special report: FRANKFURT MUSIC FAIR

BY JON BATES

Europe's biggest music fair nearly always heralds the launch of this year's new products and is a good indicator of the way things will be moving over the next year or so.

This year's 'big thing' looks like being MIDI songs. Being on the ball, *Amiga Format* looked at these back in December but what we didn't know then was there would be a veritable tidal wave of American and German companies who are now plumbing this market. This will be further enhanced by the new General MIDI Mode standard (see below).

Dr T's are marketing a catalogue of over 300 'Tran Tracks' songs: Passport, one of the first to get into this, have a huge list of 'MIDI Records': *Bars and Pipes* has its own 'MusicWare' collection of over 250 titles: and the German software house Geerdes have over 900 titles in their brochure available in this country through Newtronic. Roland UK also have their own library of songs and there were new European companies with stands dedicated purely to selling song files.

The next level was shown on the Passport stand with CD ROM disks with MIDI data on them plus audio data. You get a sequenced MIDI backing with acoustic instruments, piano vocals etc, played back through the normal CD audio set-up. Time to tune up that A500 and start singing along with your own Karaoke machine?

NEW MIDI

One of the disadvantages at present of MIDI files is that they will be set up for one synth and you may have another. This can lead to amusing and frustrating results: the bass line turns into a kazoo, the drum kit is played on a full orchestra. With General MIDI Mode this will no longer happen. It seems that most manufacturers have agreed on a formula for all ROM voices that puts them all in the same order. The standard agreed on closely resembles the Roland set-up on the D-110 and MT 32 sound modules: already Roland are pushing another extension of this concept ('General Sound') so that sound variations can be standardised as well.

As you might expect, Roland have products that meet this new standard and were demonstrating the new 'Sound Canvas' tone module with 315 sounds and 9 drum kits. At £485 it isn't cheap but it is designed with the home computer music freak in mind.

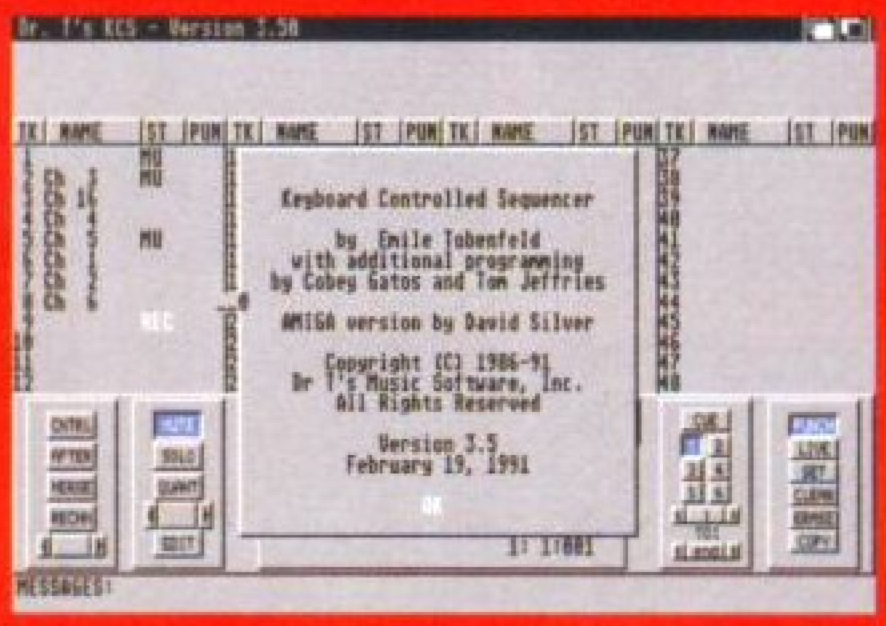
NEW SEQUENCERS

Three new Amiga sequencing packages were shown. First was the final arrival of Steinberg's *Pro 24* for the Amiga.

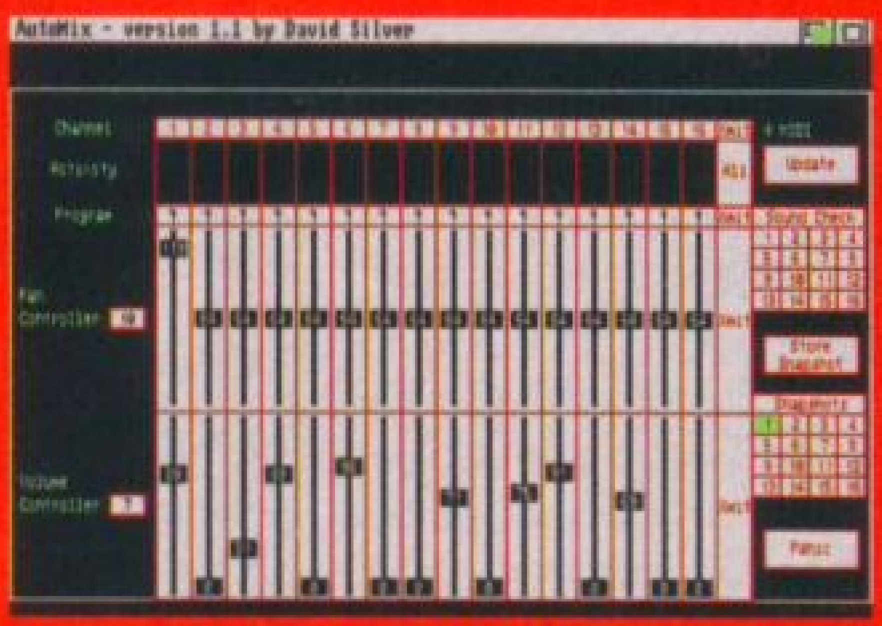
Version 1.1 will be available as you read this with 24-track recording, score display, grid and drum editing, graphic control of MIDI functions, copious overdub and cycle facilities, flexible quantize, mixdown screen and lots more. It will run on the A500 but 1 Mb is recommended and it will also run on the A3000. SMPTE and provision for MIDI export channels are also features of this new version. A review is imminent.

Bars and Pipes Professional was having its first showing anywhere. As well as sticking to the highly colourful display and graphic concept of the original there are many new up-market features. The main page is more flexible with movable windows, it will edit and print in standard music notation, has a mix-down window, enhanced quantize functions, song construction, lots of new tools, video cue sheet, multiple MIDI port drivers and event list editing. It is aimed at the more fluent musician but at the same time has all the music generating and cross-linking properties of the original version. No price is fixed yet.

We have seen many versions of Dr T's *KCS (Keyboard Controlled Sequencer)* over the past five years and the latest (and perhaps last) 3.5 is really a combination of all their sequencing software. Now called *Omega*, it combines 48 track recording and song sequencing with a quickscore print-out, mix-down pages, enhanced graphic editing – like that seen on *Tiger Cub* – and it is multi-tasking and interactive with other Dr T software.

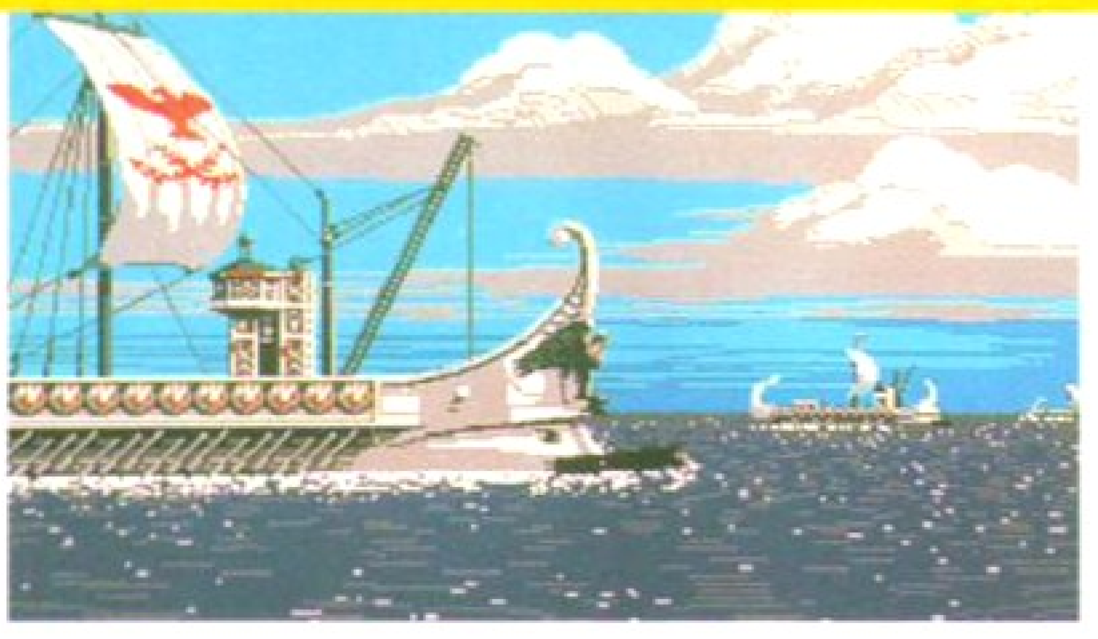
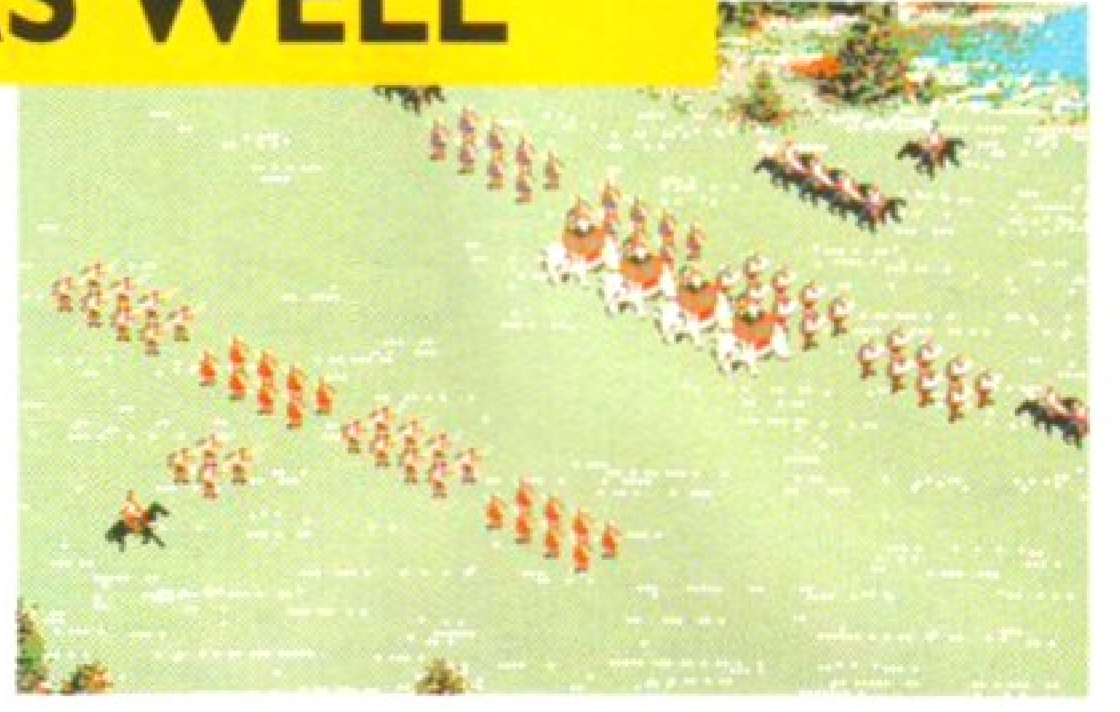
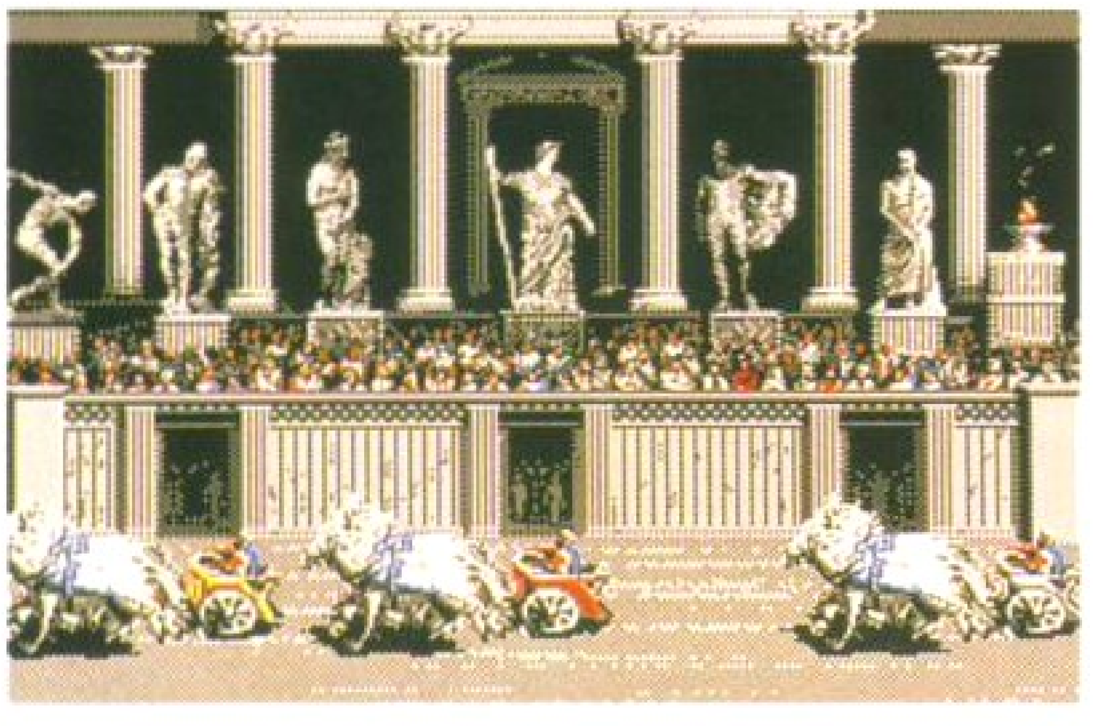


This is the new version of *KCS* from Dr T's, one of several sequencers now arriving.

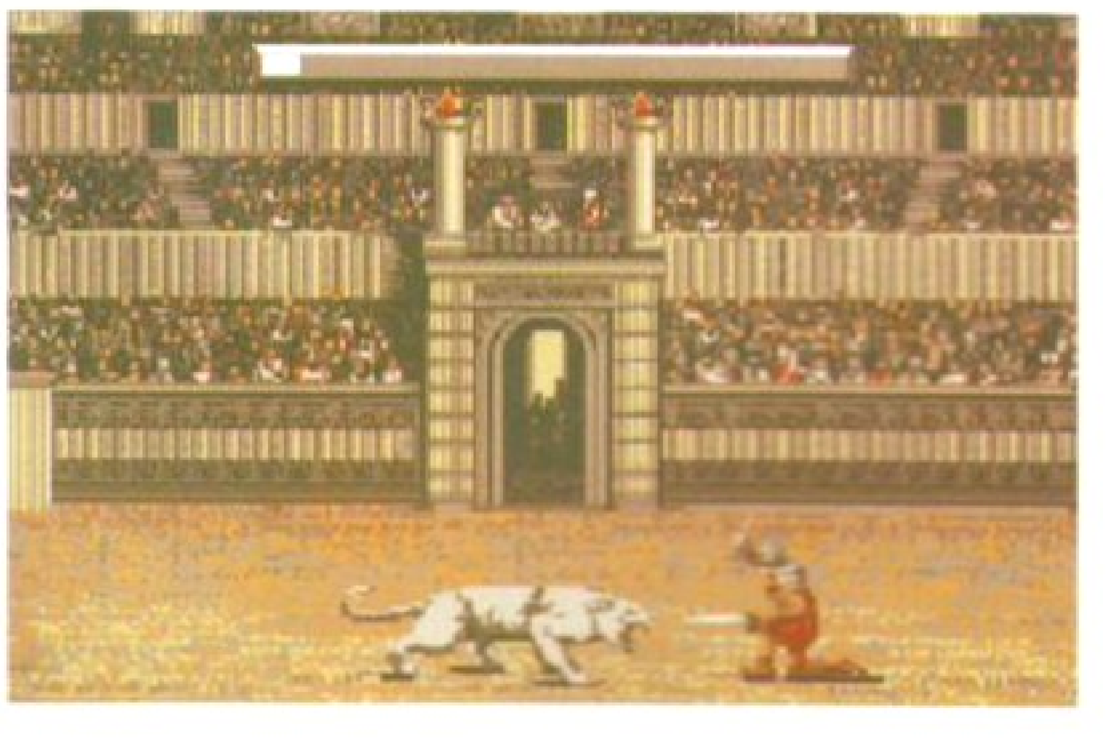


Under the name of *Omega*, it now features a mix-down facility.

EVERY CINEMATIC ADVENTURE NEEDS BLOOD AND GUTS - CENTURION'S THE FIRST TO REQUIRE BRAINS AS WELL





Up until now, so-called "cinematic adventures" have offered little more than a fair bit of action, a few pretty pictures, a couple of fairly convincing sound effects and a strategic challenge that wouldn't stretch the intellect of a gnat.

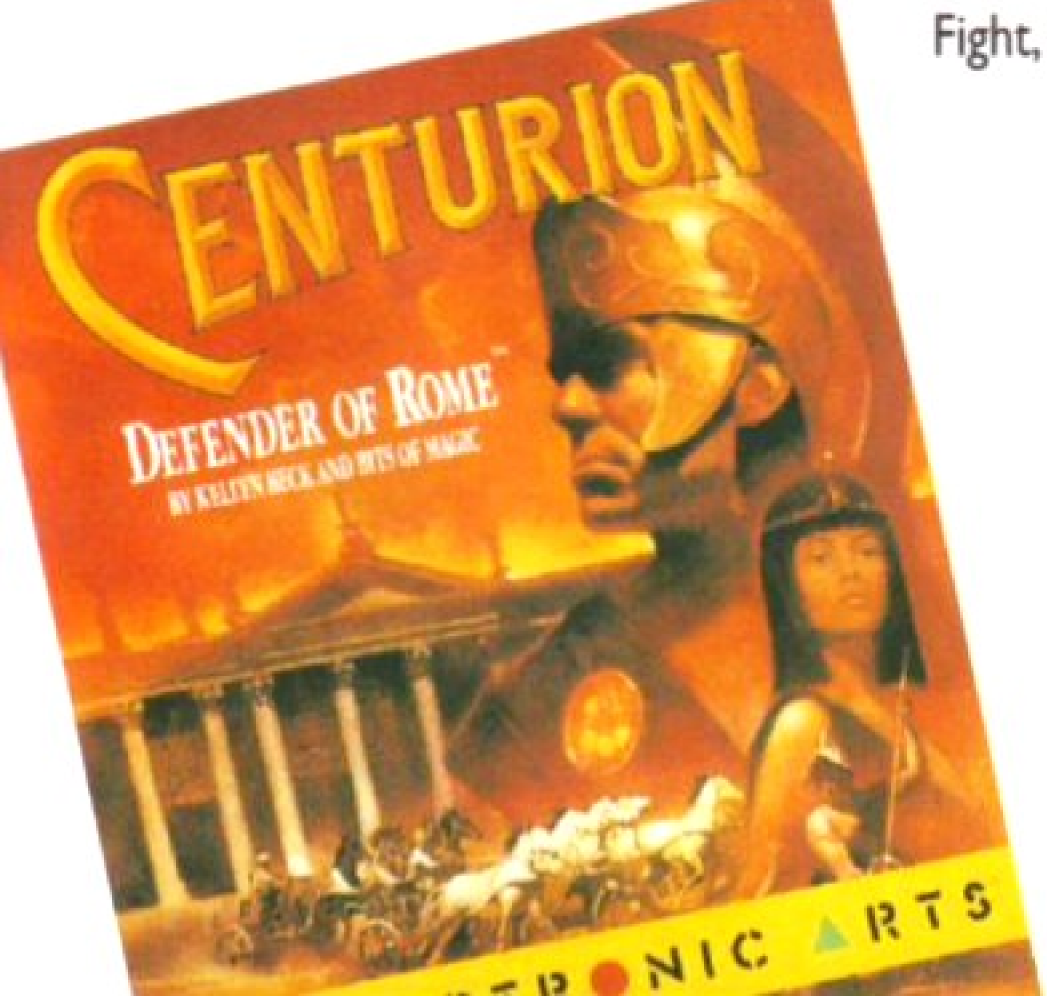
Now, from a new generation of games from "Defender of the Crown" designer, Kellyn Beck, comes "Centurion: Defender of Rome", the first movie game that allies stunning graphics with really challenging game play.

In Centurion, you must choose from an infinite number of ways to conquer the known world. Fight, bribe and seduce your way to the top: on the battlefield, in the gladiator's arena, on the chariot racetrack, even in Cleopatra's boudoir.

Centurion: Defender of Rome, for all cinema game fans with more between their ears than just their eyes.

IBM/ PC and AMIGA £24.99

If you can't find "Centurion" at your favourite store, call our Direct Sales Line: 0753-49442

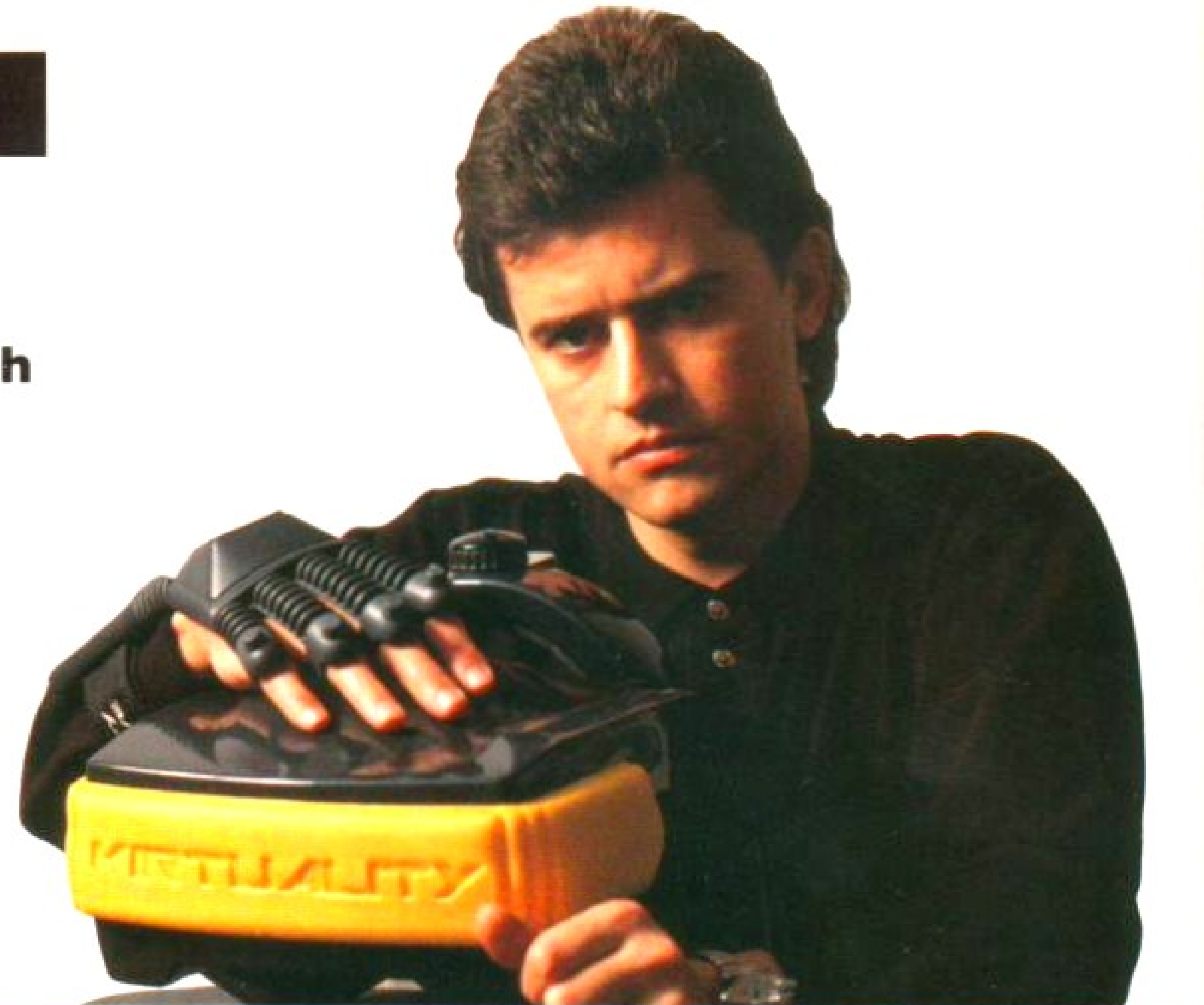


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Electronic Arts 11/49 Station Road Langley, Berks SL3 8YN Tel: (0753) 49442 Fax: (0753) 46672

3D 'virtual reality' coin-ops will reach an arcade near you soon...

Virtually a reality!



Virtual Reality became a reality this month when W Industries unveiled their Virtuality arcade system. Virtuality is the first 'production' virtual reality system in the world.

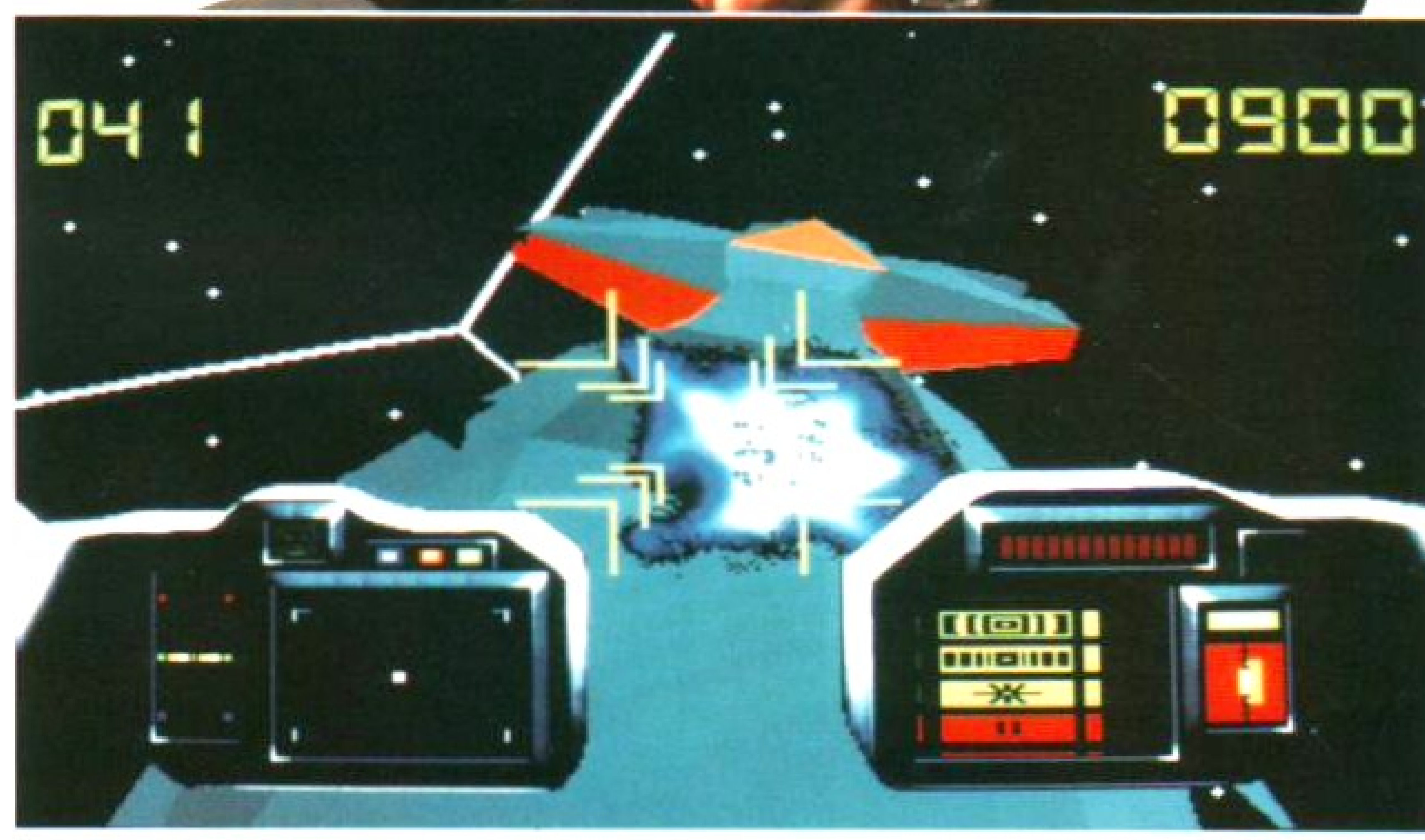
Weighing in at £20,000 a piece, these machines are now a viable and affordable option for arcade operators; so coin-op fans the world over will very soon be experiencing the whole range of 'virtual' experiences.

Virtual Reality allows users to actually enter a computer generated three-dimensional world. The headset contains stereo LCD lenses and quadrophonic speakers, so as the head is moved, the computer system calculates what is visible to the user in that direction and angle, then updates the headset's display, giving total 360 degree vision.

The concept of Virtual Reality is not new and during the last ten years many 'custom' systems have been built. Virtuality marks an important step forward, however, as it makes the technology available to the public via arcades. Virtuality will be a coin-operated system ready for anyone to try for the price of some spare change.

At the heart of the machine is that proven technical winner the A2000, albeit considerably modified. Using the same 'Visette' headset as the arcade machine and a 'Spaceglove', Virtuality will also be used as a walk-around system, allowing users to touch and manipulate objects as well as view them. W Industries also hope to launch a Force Feedback glove, which replicates the sensation of the pressure applied when an object is touched or lifted.

In researching our feature on 3D games (starting on Page 33) it became apparent that many of the leading 3D game programmers are interested in working with virtual reality systems. Very soon, they will be able to... and then we'll see how good 3D can be!



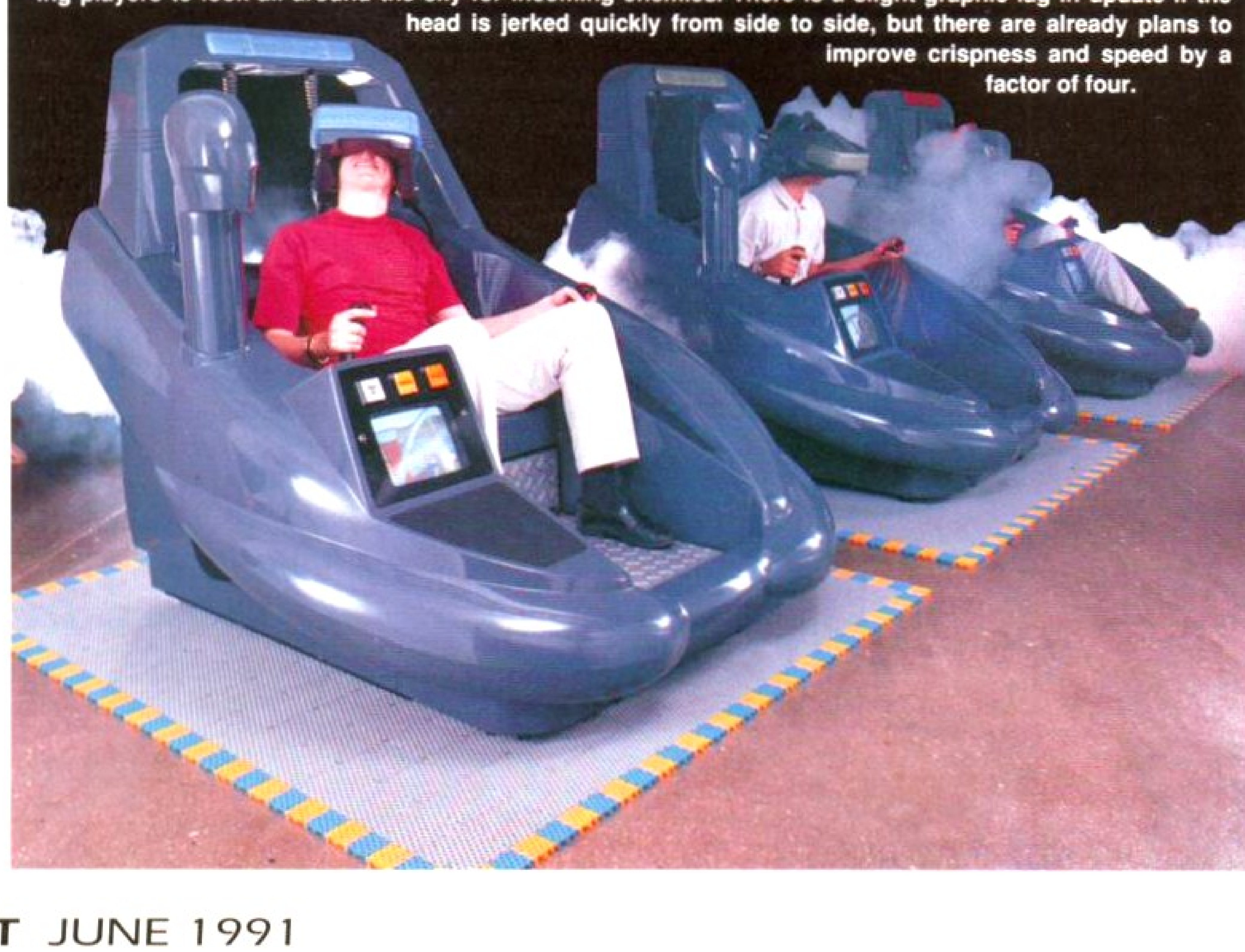
Battlesphere **is one of the first games to be developed for the Virtuality system and uses it to the full. The game concerns opposing fleets of star fighters trapped within each other's force fields. The guns are targetted with the helmet and are not slaved to the front of the simulated craft. This encourages players to fully explore the 360 degree world created around them, as enemy fighters have to be followed around with the head, not the ship.**

GOING TO THE CHAIR

The Virtuality system comprises a huge arcade chair and a Visette. The Visette is a large helmet which contains LCD lenses and quadrophonic speakers and is clamped to the head. The helmet's relative position is sensed remotely while cables coming out of the back pass all the display and sound information from the machine to the helmet. The guts of the machine are hidden in the seat of the chair.

As the system stood on its launch day, it was both impressive and persuasive. The games were initially disorientating and the graphic display initially appeared blurred. The blur is simply because your eyes need a few seconds to adjust to LCD lenses a few inches in front of the eyes. Most folk also spend a few moments lolling their heads just looking around at the total 3D.

The 3D is solid and convincing and the VTOL Harrier game uses the system's attributes to the full, forcing players to look all around the sky for incoming enemies. There is a slight graphic lag in update if the head is jerked quickly from side to side, but there are already plans to improve crispness and speed by a factor of four.



STRATEGY...REALITY...

MEGATRAVELLER 1



IBM PC SCREENS SHOWN

Heralded the American computer role-playing game of the year!

Based on Megatraveller by Game Designers Workshop, the world's most popular science-fiction gaming system.

The most sophisticated character generation system ever devised: five military classes, more than seventy talents and abilities. Allows player to control character development through five services: Army, Navy, Marines, Merchants and Scouts.

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"Megatraveller 1 is one of the best science-fiction role-playing games ever for the computer"

"Megatraveller 1, a game that truly warrants the highest level of praise, the attention to detail makes it exceptional"

(Quotes taken from Dragon magazine US and Quest Busters magazine US)

Amiga and ST implementations by STeVeN Green

TAKES SCIENCE FICTION ROLE-PLAYING LIGHT YEARS FORWARD

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SO REAL YOU CAN SMELL THE SMOKE

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Team Yankee is the definitive action simulation of modern tank warfare.
"Team Yankee.... the critics' choice"
Team Yankee is designed to test your leadership and tactical skills to the quick.

AMIGA FORMAT
Team Yankee presents a game, in a sims clothing, which when dealing with tanks has to be the perfect approach!

ACE
The blend of thought and reflexes required to play Team Yankee is exactly right!

ST FORMAT
Hunting the Red Bear has never been so much fun!
You won't be able to tear yourself away from Team Yankee!

STRATEGY PLUS
This is a game and a half! The use of four screens in one is simply brilliant - at times it's almost like playing on four computers at once! I quickly found myself hooked on a genre of game which previously held no interest.

AMIGA ACTION
The tanks have been superbly animated, with great attention to detail! This has to be a must for everyone!

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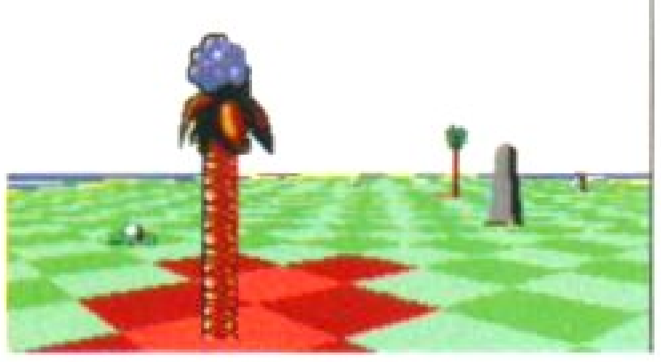
The July issue will be a totally new concept in Amiga magazines: two Coverdisks and not just one but TWO utterly wonderful complete full-price classic games! Two disks, two cracking games – it's the greatest Amiga magazine offer!

Once again, we've bowed to pressure from you, our readers, to give you the best deal in magazines anywhere. After the two-disk issue at Christmas we had such an overwhelming response asking us to do it again, we had to agree.

And we've striven to get you the very best possible for the second Coverdisk – we're giving you not one, but two full-price top-class games. First *Interphase*, the highly-rated 3D exploration game. Now *Balance of Power*, widely accepted to be one of the major classics of all time. And next? Well, there's *Archipelagos*: widely accepted as one of the best 3D games ever produced. And we have another complete cracker of a game on the other disk.

What does it cost? Only an extra £1. For a blank disk that's not a bad deal, but when you get a game worth £25 as well, you're laughing. The only trouble is this will be the last time we can give you a complete game: so get it while it's hot!

NEXT ISSUE'S GAME
ARCHIPELAGOS



Archipelagos is one of the most intriguing 3D games ever released. In a world of islands scattered about an enormous ocean, you must prevent a sickness in the form of contorted trees creeping across the land and ultimately destroy the awesome obelisks of power left behind by an alien race. It's a huge game, featuring 10,000 progressively more difficult levels packed with action.

PLUS: THE BIGGEST SURPRISE OF ALL!

Yes, the big surprise is that Issue 24 will contain not one but TWO excellent games. *Archipelagos* you know about: but what's the other? Well, the deal will be agreed in literally two hours' time: but this page has to go to the printers in ten minutes! Rest assured that this will make the double-disk Issue 24 of *Amiga Format* the best value in magazines ever. Just wait!

Issue 24, July 1991 on sale 13th June £3.95

ARCHIPELAGOS COMPLETE GAME
Format Gold, ST/Amiga Format May 1989





Whether you just dip in and have a bash or spend many an hour wrapped up in its complexities, you'll find this one of the most entertaining games you've played. It was released in May 1989 and *ST/Amiga Format* (as your favourite magazine was then) gave it a great 84%.

"Where the thrill really lies is in the gameplay" said Mark Higham, now editor of *ST Format*, in his review. "It's a strategy very much in the mould of Firebird's Sentinel. When the clock starts and you face a ninety-second countdown in search of the obelisk, the game gets really exciting.

"Almost 10,000 levels have been wildly designed to ensure even the seasoned gamesplayer comes back for more. You learn your own ways of tackling problems: it's this gameplay which makes *Archipelagos* a very original concept and worthy of a Format Gold."

ENTER THE CDTV

As the CDTV prepares for launch, we take a close look at the hardware and the software. Is it the next big thing in home entertainment? Will every household have one by 1993? Is the CD-based software as good as we expect it to be? All these questions answered, and more!

With the release of the CD-ROM add-on drive for the Amiga imminent, you need to know whether it will be worth buying one to gain access to the world of CDTV software. Our complete guide to the first CDTV titles will tell you. Don't miss it!

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There's one way you can get both this exciting two-disk, two-game issue without paying more than the usual price, and that's to subscribe to *Amiga Format* for the next year. Think about it: twelve issues of *Amiga Format* delivered straight to your door, a free special extra subscriber's bonus of a game or some serious software, plus the two double-disk issues of *Amiga Format* at no extra cost! You know it makes sense! See Page 174 NOW!

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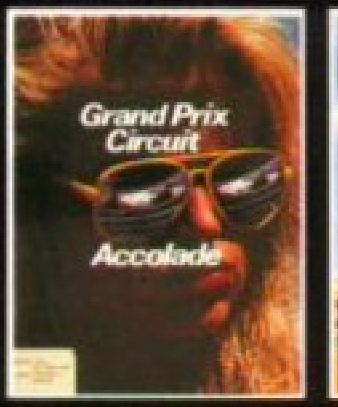
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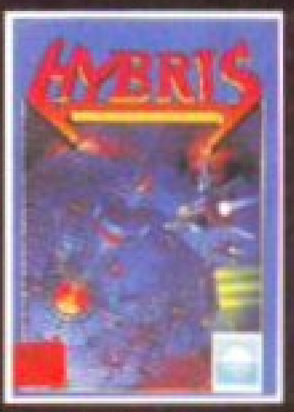
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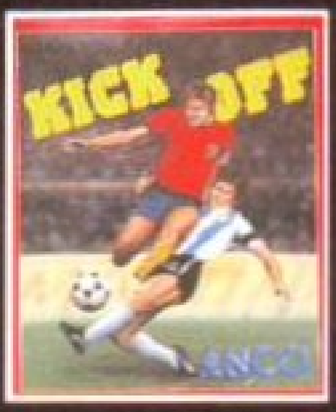
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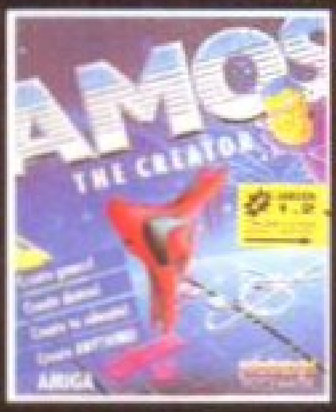
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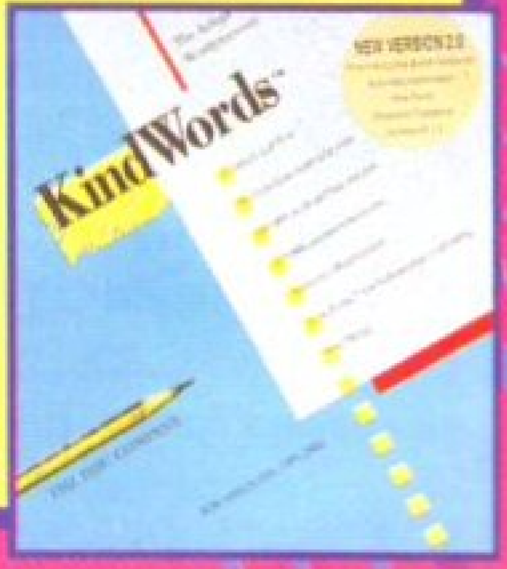


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ON THE DISK

ATOMINO P15
Making molecules, that's the name of the game. Fix the atoms together properly or end up hopelessly confused in this great little puzzle demo from Psygnosis.

3D CONSTRUCTION KIT P19
Interested in making your own 3D games without too much matriculation? Try this demo of the forthcoming program from Domark which lets you design your own games to taste.

PIC OF THE MONTH P19
Black-and-white? What sort of computer artist doesn't use the fantastic colour abilities of the Amiga? The sort with some imagination and a little extra hardware – the many faces of John Goulding.

DRIVEIFF P18
3D driving games are all very well, but you do get bored of racing around the same courses. This one from Jonathan Harris is different – it lets you design your own courses.

HACKTRICK 60HZ P19
If you have a game which you would really like to run just that little bit faster, then why not try this program from Mark Sarul. It puts your Amiga into 60Hz mode and lets you boot your program as normal.

GETTING STARTED

To play either *Atomino* or the *3D Construction Kit* demos, all you have to do is insert the Coverdisk and turn your machine on. A question will appear – which one do you want? Press Y then Return for *Atomino*, or N then Return for the *3D Construction Kit*.

To use the other programs, you will have to start up the machine with your Workbench disk. Then it's usually a matter of pointing and clicking with the mouse (except for *DriveIFF* more details on P17).

MAKING A BACK-UP??
Problems
DISK FAULTY??
Turn to Page 18 NOW and learn how to use your Coverdisk

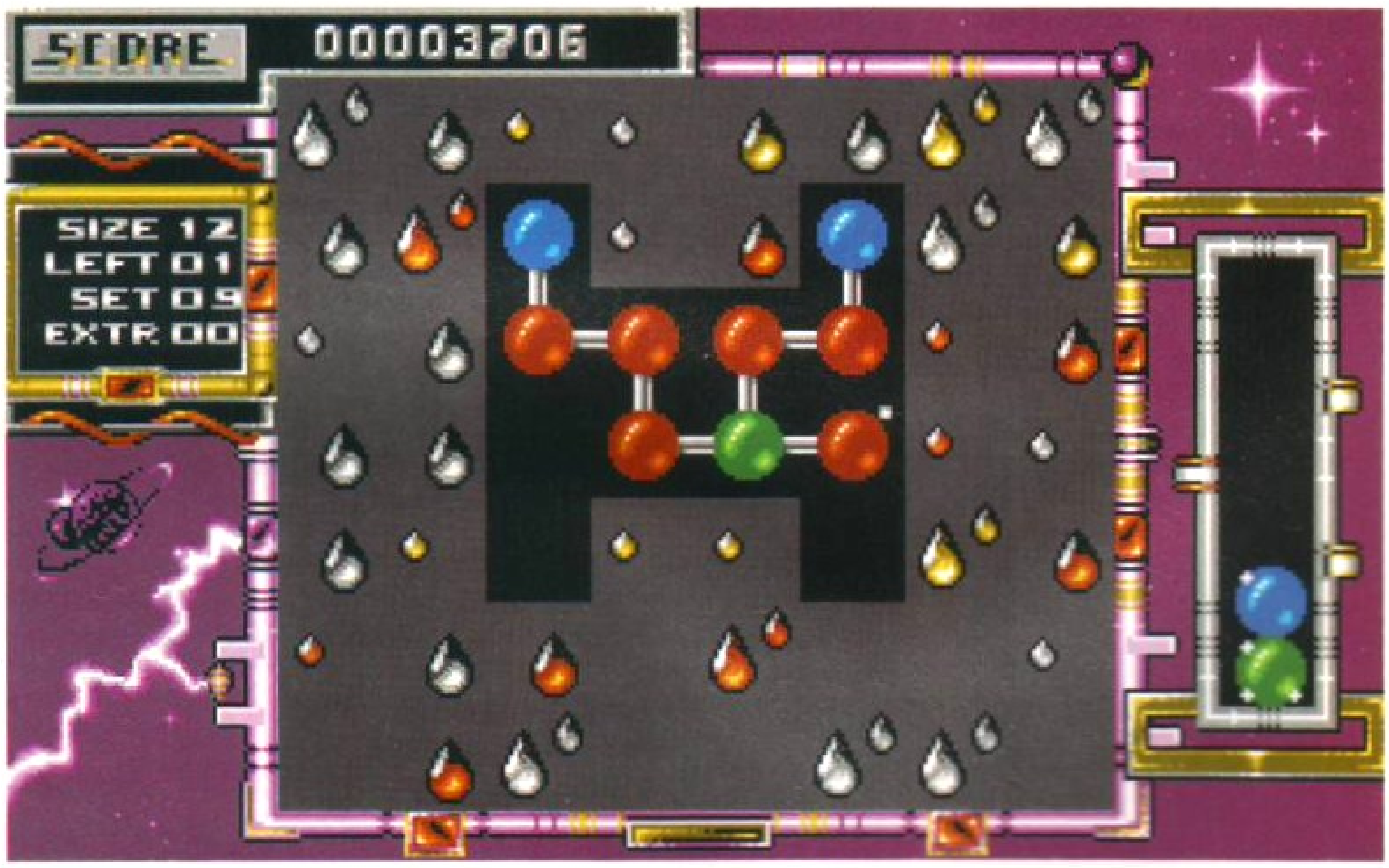
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Think you've got what it takes to write for the *Amiga Format* Coverdisk? Prove what you can do and earn yourself some cash in the process! We're after Workbench hacks, demos, utilities, games ... You could earn up to £800! Turn to P18 for details.

COVER DISK

Two great demos of the latest entertainment software, a cute little driving game and a handy utility. MAFF EVANS gives the inside story on Atomino and PAT McDONALD tells you the technical bits.

ATOMINO
PSYGNOSIS PAL/NTSC



Forget about all those Open University courses and weekly, built-up-in-parts magazine lessons – now absolutey anyone can be a nuclear scientist thanks to Psygnosis and their molecule-busting release *Atomino*.

To start this physics phreak-out, simply power-up your Amiga, insert the Coverdisk, then press Y and hit Return when you are asked if you want to play *Atomino*. A nice picture of Albert Einstein will load, shortly followed by the game itself. To start the game, press fire on your joystick and select GAME from the menu that appears.

The concept of the game is simple. You have to place atomic particles on a grid and achieve the correct valence bonding to create stable molecular structures. It's all right, you can pick yourself up off the floor now! I'll explain in more basic language...

To the right of the playing area is a test tube, into which coloured atoms fall. The cursor shows how many spare electrons the current atom has. You have to place the atom on the screen so that the spare electrons revolving round it fuse to the ones revolving around the neighbouring atoms.

Once you have created a closed pattern that has no spare electrons, it is deemed to be a complete molecule and is removed from the grid. If you play too slowly, then the test tube will fill up, ending your game.

As well as placing a new atom in a blank space, you can also swap it with one already in play: then using the one you replaced elsewhere on the board.

BOX OF BITS


BLUE
1 Electron


RED
2 Electrons

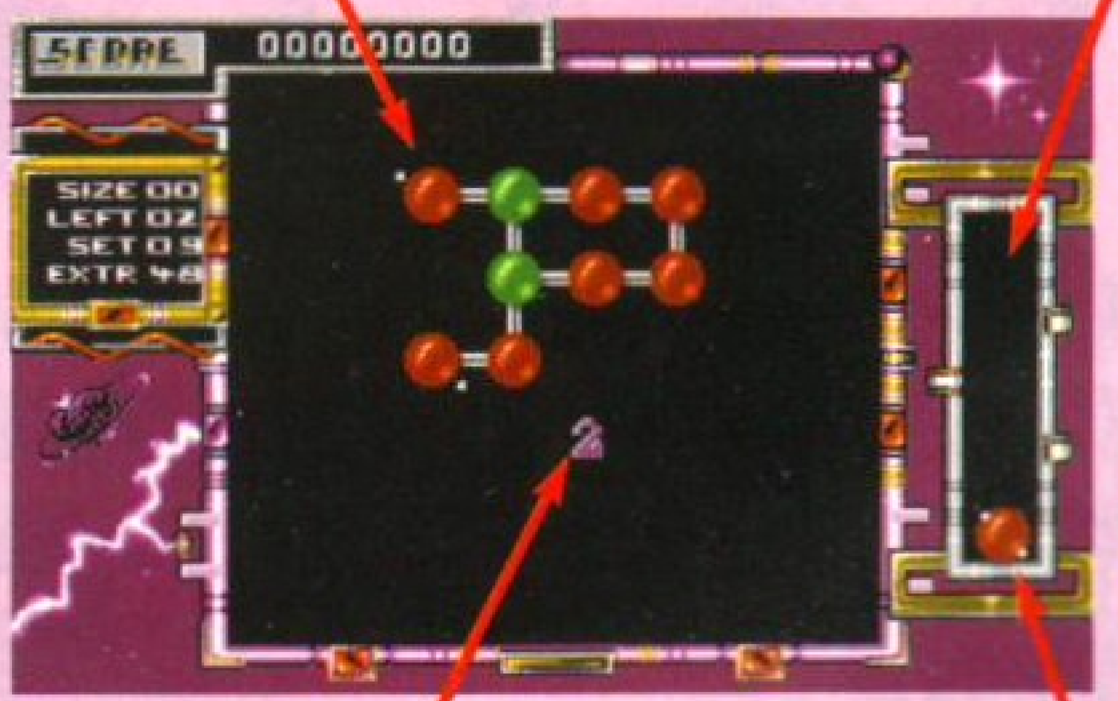

GREEN
3 Electrons


YELLOW
4 Electrons


FIXED ATOM
Can't be replaced

ATOMINO
PSYGNOSIS PAL/NTSC

THE SCIENCE LAB



Molecule Under Construction: Loose electrons revolve around the parent atoms.

Test Tube: Holds atoms to be played. If it fills up, it's game over.

Cursor: Displays the number of spare electrons on the current atom.

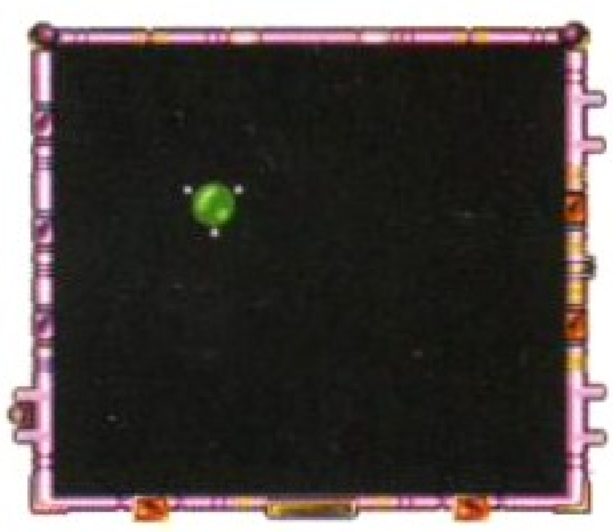
Atom Currently in play.

The requirements for completing a stage depend on the type of level. Level One simply requires you to complete two molecules, while on Levels Two, Four and Six you must build a molecule that fills a predefined shape. Levels Three and Five just require you to try and clear the screen, but with the added complication of riveted atoms which can't be replaced with others.

One point that you should note is that Level Five is the one of the finished game's higher and far more trickier stages – so try not to be too disheartened if you don't complete it!

PROMISED YOU A MOLECULE

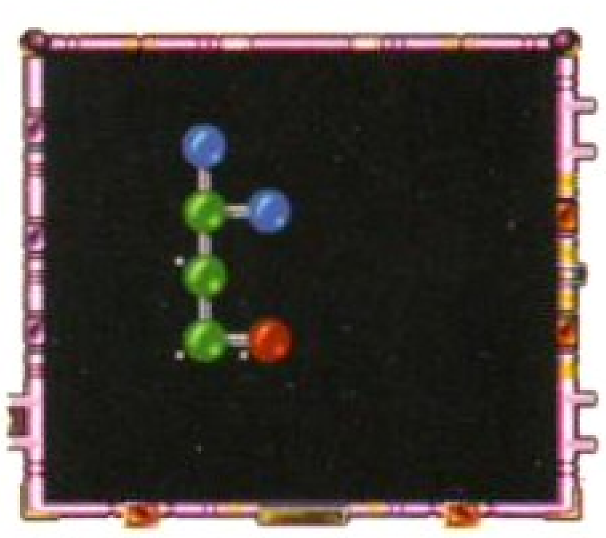
Here is a typical example of a simple molecule's construction.



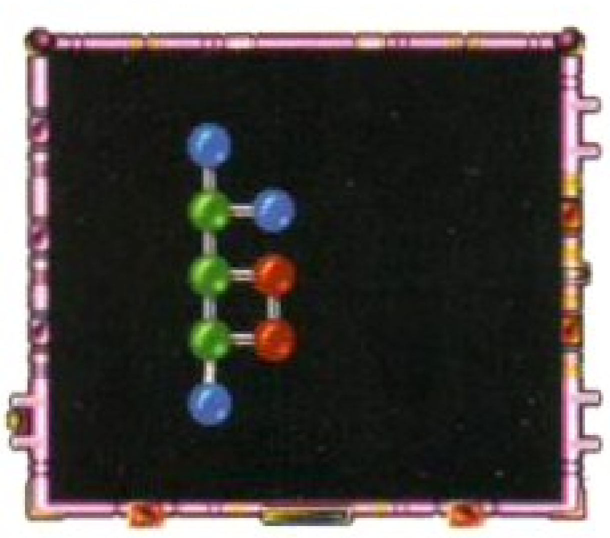
1. Starting a new molecule on a blank grid, a green, three-electron atom is first to appear. Just plonk it down anywhere on the screen for now – if needed it can be moved later.



2. Next come two blues in a row. Put them down next to the green to tie off two of the bonds, but the chain continues with the single, spare electron, so the level still isn't over!



3. Two more greens extend the chain down further and a red ties off a green bond to form another branch off to the side. There are three electrons still left to bond!



4. A red seals one of the spare green electrons and the remaining red electron and a blue ties the whole thing up. Voila! One completed molecule!

DRIVE IFF
JONATHAN HARRIS PAL/NTSC



If you want a racing game that you can change, try out *DriveIFF*. It uses a smaller than normal screen to get the best speed possible – in fact it gets uncontrollable at top speed!

This is a good pseudo-3D racing game with a few different bits to add variety. In most racing games, you can only go one way around the same standard circuits. Mostly it's a case of racing against the clock, and without a lot of extras they soon get tedious.

This is different in that you can design your own courses with a paint program – it will load any IFF picture as a course, and let you race over it. It's best to stick with pictures that have eight colours or less, though: any extra colours are lost.

To run it (if you have more than 512K of memory) simply switch on your machine, insert the Workbench disk and wait until the drive light has gone out – you will be left with a screen containing the Workbench disk icon and probably a RAM disk icon. Insert the Coverdisk, and double-click on its icon. Double-click on the DriveIFF drawer, and finally double-click on the DriveIFF icon itself.

512K users have to use a different approach. Switch your machine on and insert the Coverdisk. Keep the Ctrl key (often called the Control key) held down and keep the D key pressed at the same time. Once you see the word 'Break' appear, type in this line (don't forget to press the Return key at the end):

```
DriveIFF/DriveIFF
```

Once the program has loaded, it takes a couple of minutes to set itself up. It displays a message to this effect, and the timer on the left of the screen has to count up three times before the game can be played.

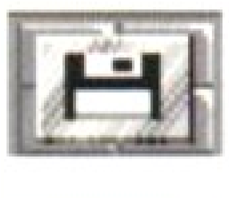
You will end up with a view looking north – don't be confused if it doesn't look much like a race track, because DriveIFF doesn't automatically load a track. Take a look at the map in the mid left of the screen. On this is a flashing cursor which indicates your position.

To load a track, use the mouse to click on the disk icon. This will bring up a box – click on 'show devices', and then on 'DF0'. The contents of the Coverdisk will be displayed – click on the directory marked DriveIFF, and then on Road. The course will be displayed as a normal screen – wait a few seconds and click with the right mouse button to return to the driving screen.

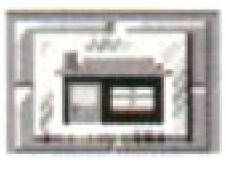
To race around, simply move the joystick. Push forward to accelerate, pull back to brake (braking extremely hard will make you go into reverse) and push left and right to turn.

If you find yourself flying off the edge of the screen to the north or south, suddenly the display will look like a random display of squares. Don't worry – you are now driving across the internal memory of your computer! Take a note of which way the compass is pointing, and turn around to head back to the track.

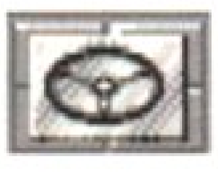
THE ICONS



Disk – used to load different screens as tracks.



Home – if you get lost, press this to return to the middle of the track.



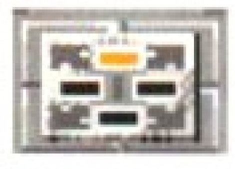
Drive – get back to the driving screen by clicking on this icon.



Stop Watch – press to time a race over a particular track.



Attributes – this lets you alter the elevation (how high you bounce) and the inertia (how slow you go) over each colour used on the track.



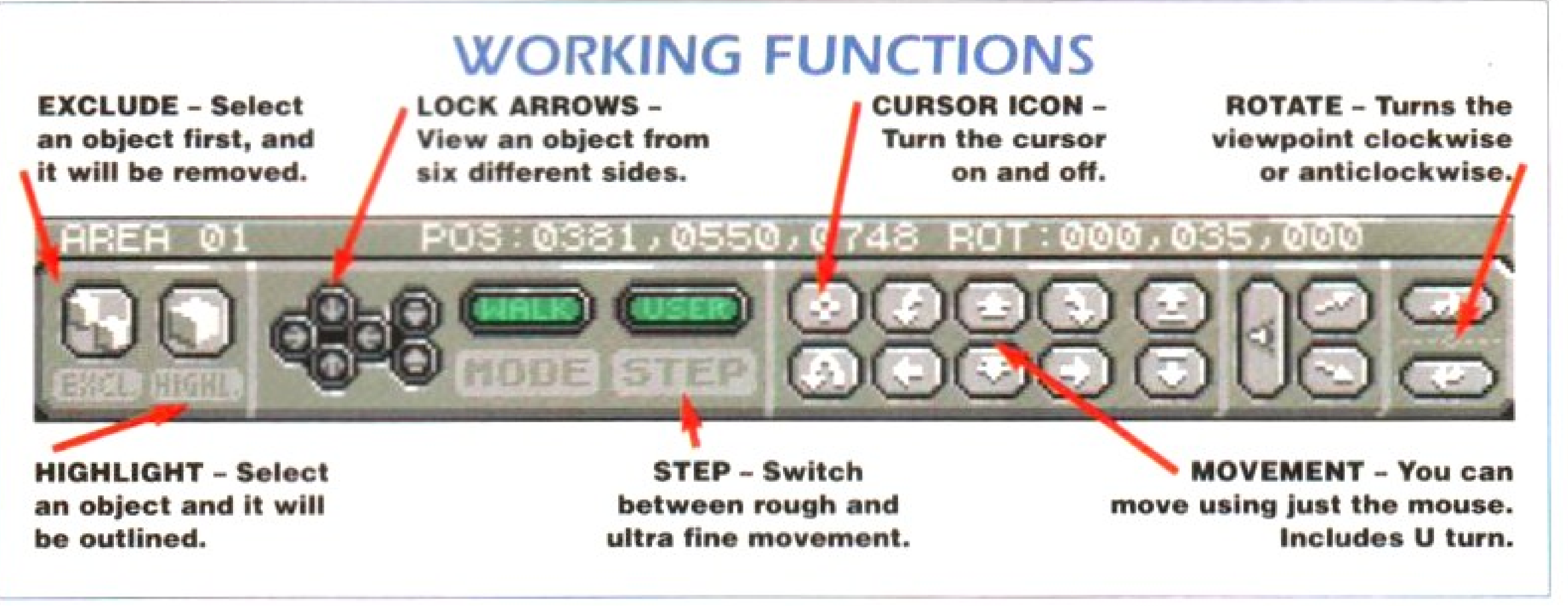
Compass – this tells you in which direction you're pointing in relation to the screen.



Exit – enables you to get out of *DriveIFF* (only works if you are running it from Workbench).

3D CONSTRUCTION KIT

DOMARK PAL/NTSC



The idea of the Freescape system is a totally 3D world. You can walk about, discover objects and (hopefully) complete the game. The concept has proved to be so popular that Domark are soon to release the *3D Construction Kit* to let people make their own games with the system.

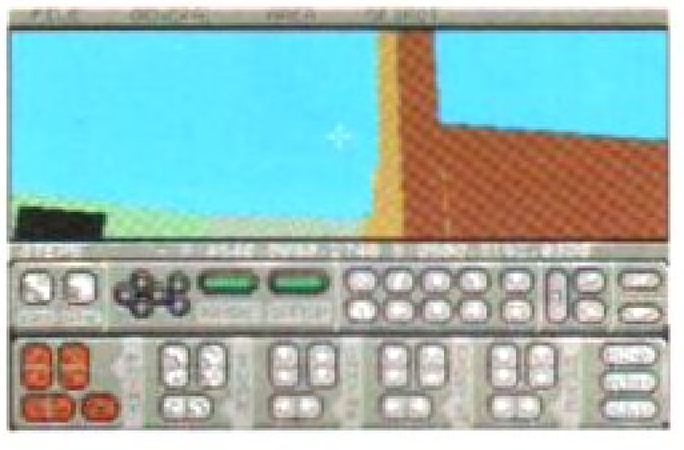
To start the demo, simply turn on your machine and insert the Coverdisk. When the machine asks you if you want to play *Atomino*, press N and then the return key.

Once the demo has started, just concentrate on getting use to Freescape. It's a good idea to press the 'Test' icon. This removes the editing features and leaves just a few icons to move around the landscape, which is a simple building surrounded on all sides by low walls.

You can either use a joystick to move, (turn left/right or walk forwards/backwards) or the mouse to click on the icons. Pressing the fire button fires at the object your pointing at – the mouse button is more flexible, because you can aim around the screen.

Try walking up to the building in the demo. You can walk through the door or go up the steps to the roof. If you walk through the door you will appear in a different area, that is you are inside the building. Walk up to the washbasin in front of you and click on the down arrow beside the eye icon. This alters your viewpoint so that you can look directly down. Try pressing the up button to turn the viewpoint upwards.

Once you've played around a bit, go back out through the door and move around the building. On the opposite side to the door you will notice a door in the wall that surrounds the building. If you move closer, a set of coloured cubes appears in the doorway. By shooting these you will unblock the doorway.



The editing buttons allow you to twist, shrink and expand any object block in any dimension. Try clicking on the different buttons with the mouse to alter the selected object.



By pressing the Test button or selecting it from a menu, the editing features vanish and you're left with just the game itself. Move the mouse to the top of the screen and press F1 to go back to the editor.

Down to Earth

Now you've got some idea of how Freescape works, move the mouse pointer to the top of the screen and press F1 (that's next to the Esc key) to return to the editor proper. You can start playing around with the menus straight away (just move the mouse to the top of the screen and they drop down automatically) but it's probably best to understand the front panel first.

Freescape works by building up a landscape from different sized and shaped objects. This demo allows you to edit the objects built into it, but you cannot create new ones.

Try clicking on the 'Edit Object' icon. This will bring up a list of the objects that you can change – you can scroll up and down the list with the arrows at the left. Click on Building, and a seperate screen comes up to change the building.

If you look at the bottom of the screen, you will see a new set of icons – generally opposite pointing arrows with different labels. With these you can move the building, shrink or expand it in any of the three dimensions (X, Y or Z). To finish your alterations, click on "OK": you'll find this at the bottom right of the screen.

HACKTRICK 60HZ

MARK SARUL PAL ONLY

Often when using programs you notice a black area at the bottom of the screen. This is because the programmers have stuck to the NTSC standard which displays fewer horizontal lines than a PAL system.

This program is very good because it causes the whole machine to reset in the alternative mode. After the machine has changed, just boot up with your program disk as normal. The display is stretched to fit the whole screen, and the machine speeds up slightly

To run the program, simply turn on your machine and insert the Workbench disk. After Workbench has loaded (the drive light goes out and you are left with a screen with the Workbench disk icon on it) insert the Coverdisk. Double-click on the Coverdisk icon, and then double-click on the NTSC icon. It might be an idea to remove the Coverdisk, otherwise the machine will start it up. Press the left mouse button again to reset your machine in NTSC (sometimes called 60Hz).

Owners of older machines will find that the program simply does not work. The reason for this is that older Amigas cannot switch like this, but the program won't do any harm to them by attempting to run it, though It will work on the majority of machines.



Just click on the icon, take out the disk when you get this screen and press the left mouse button to restart in NTSC stretched screen mode.

PIC OF THE MONTH

JOHN GOULDING PAL/NTSC



This month's winner uses a popular technique. First he digitises his face using Vidi Amiga, and then he distorts the images with *Deluxe Paint*. Hard to believe that all six faces are his own! Think that you can do better? Then send your entry to: Pic of the Month, *Amiga Format*, 30 Monmouth St, Bath BA1 2BW.

Using Your Coverdisk

DISK PROBLEMS?

If you have a problem with the disk – and you're sure the disk is in full working order – then you may need a little help. We cannot normally give out advice over the telephone – but if you are completely stuck, Pat McDonald may be able to deal with any problems you may encounter. Please understand, giving this sort of advice is time-consuming and we are very busy people, so only call if you really have to and do be considerate if we can't talk to you just then. If the problem is particularly complex it is better to send it to us in written detail. It will then be dealt with in the Workbench pages of the magazine.

1. Always write-protect your disk. Move the tab so a hole is showing.
2. Copy the Coverdisk and use the copy not the original. Instructions for copying the disk are given below.
3. Read the instructions when using the programs.

BACKING UP YOUR DISK

It's worthwhile using a copy of the Coverdisk – indeed any disk – and keeping the original safe. This may sound like a complicated task suitable for techno-buffs only, but it is surprisingly simple, provided you follow these instructions carefully:



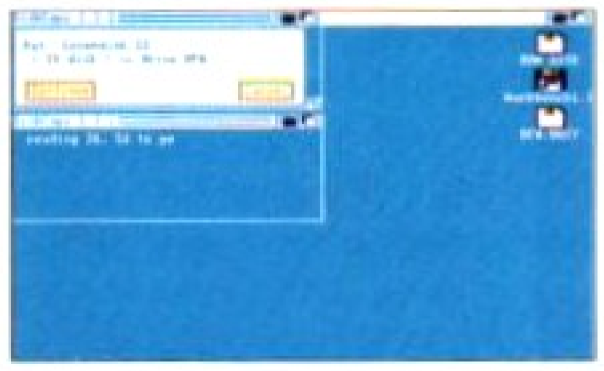
First turn on your machine and load the Workbench (one of the disks everyone gets with their Amiga). Once the Workbench screen appears and the drive light goes out, remove your Workbench disk and insert the Coverdisk. Once the drive light has gone out your screen should look like the above.



Next, move the mouse pointer to the Coverdisk icon and click once with the left mouse button – the icon will highlight. Press the right mouse button and keep it down. The words 'Workbench', 'Disk' and 'Special' will appear at the top left of the screen. Move the pointer to the word 'Workbench', and a menu will drop down. Select the 'Duplicate' option: you should have got this far.



The computer will ask you to insert the Workbench disk again – it needs to read the command to copy disks. After you've done this, a boxed message (a requester box) will appear, asking you to insert the source disk. Insert the Coverdisk again and click on the OK option with the left mouse button.



After the computer has read part of the Coverdisk, it will again display a requester box asking for the destination disk to be put into df0. Put in the disk that you want the Coverdisk copied to. This procedure of swapping disks will continue until all the disk has been duplicatedon to the other disk.



Eventually, you will end up with two Coverdisk icons, one of which has the name 'Copy of Coverdisk 22'. Click once on this with the left mouse button to highlight it. Bring down the 'Workbench' menu again (by holding down the right mouse button and moving the mouse pointer to the top left) but this time select 'Rename' from the menu. Let go of the right mouse button to select the Rename option.



The name of the disk will appear in an elongated box – you don't need to insert Workbench again because the Rename command is built into the machine. Press the 'Del' key (next to the 'Help' key) to remove the 'Copy of' part, and press return key to make the computer put the new name to copy.

DISK NOT WORKING?

We duplicate over 100,000 disks every month. Out of all those, obviously a few will be faulty. If the disk or any of the programs will not load or run properly, there may be a problem. Don't panic!

First try using the *DiskDoctor* utility on your Workbench disk to rescue it before sending it off for a replacement. In-full details of *DiskDoctor* can be found in the user's manual that came with your machine.

However, if it transpires that your Coverdisk is faulty, you should send it back INCLUDING AN SAE for a free replacement within a month of the cover date to:

Amiga Format
June Disk
30 Monmouth St
Bath BA1 2BW

Remember to include that stamped, addressed envelope!

BE CAREFUL!

We have done our best to check that the programs on the *Amiga Format* Coverdisk are simple to use and have no known viruses. We cannot usually answer complex telephone queries on the software (see the Disk Problems? box) and we do not accept liability for any consequences of using the numerous programs that are on the disk.

COPYRIGHT

Unless specifically stated, the programs on the Coverdisk are not in the public domain and the copyright remains with the author. Selling or distributing these programs without the author's permission is against the laws of copyright.

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(Evenings) ....

My program name is ....

....

Approximate total size of files in kilobytes ....K
(we cannot use programs larger than 200K; shorter submissions, under 100K, stand the best chance of publication). It is a:

- ☐ Game
- ☐ Business utility
- ☐ Music program
- ☐ Novelty
- ☐ Technical tool
- ☐ Art program
- ☐ Educational
- ☐ Other

Brief description ....

....

....

....

Checklist **(please tick):**

- ☐ **Stamped-addressed envelope for return**
- ☐ **README.DOC explanation file on disk**
- ☐ **Printout of README.DOC file (if possible)**
- ☐ **Name, address, machine type written on label**
- ☐ **Disk certified virus free**

IMPORTANT **Please sign this declaration:**
This program is submitted for publication by *Amiga Format*. It is wholly my own work and I agree to indemnify Future Publishing against any possible legal action should copyright problems arise.

Signed ....
Date ....

WE WANT YOUR PROGRAM!

If you've got any programs which you think other readers would find useful, interesting or amusing, we'd very much like to know about them.

1. Make sure your program is simple and foolproof to use. Test it for all those bugs which you are sure you fixed: there are always more.
2. Create a file called README.DOC on the disk which explains exactly how to use your program. Try to make it humourous and informative - a good README.DOC gives a program a better chance of going in.
3. Fill in this form, sign it, and send it with your disk (and a printout of the README.DOC file if possible) to: Coverdisk Software, *Amiga Format*, 30 Monmouth Street, BATH BA1 2AP. You could win a share of up to £800 prize money.

ONE DAY INTELLIGENT MACHINES WILL TAKE OVER THE WORLD...

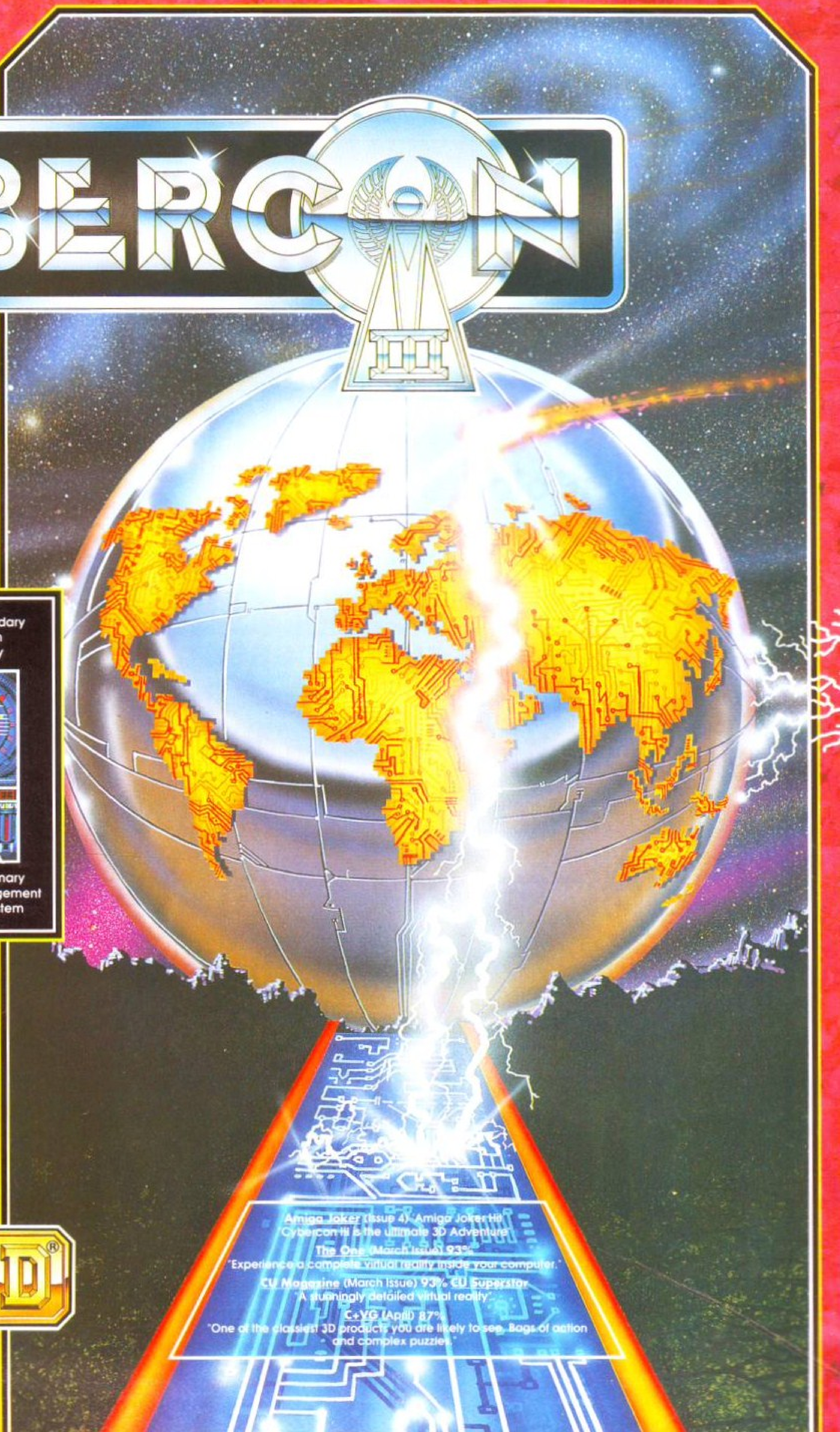
H. G. WELLS (1866-1946)

"I HAVE"

CYBERCON III (2011-?)

Well almost. You have bravely volunteered to execute 'Operation Nemesis' - The destruction of the merciless Super Defence computer gone mad: Cybercon III.

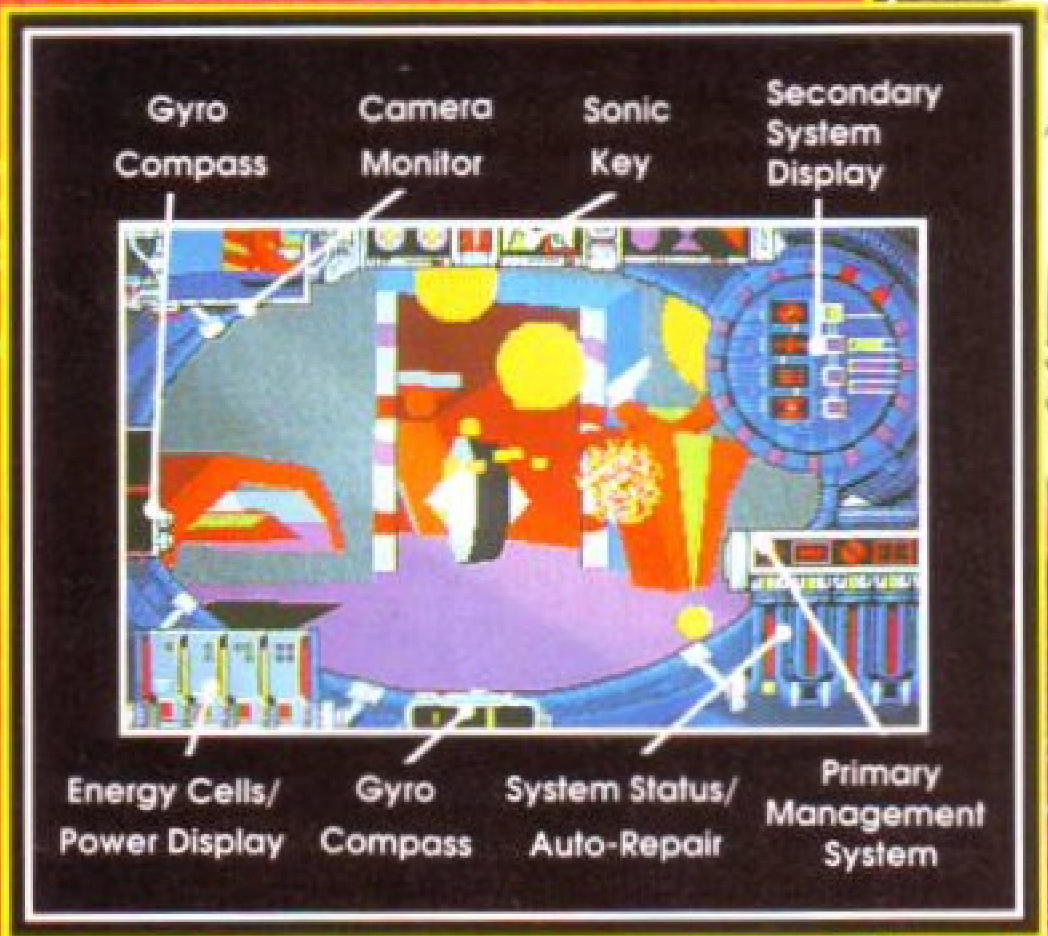
Equipped with your enhanced power armour salvaged from the wreckage of Cybercon III's onslaught, you must penetrate the defence complex protecting Cybercon III's brain stem and deactivate it.



Cybercon III is a game of epic proportions and features:

- *The ultimate 3D environment - named 'Real World', it contains the fastest, smoothest scrolling 3D graphics ever seen.*
- *Battle and puzzle your way through a huge complex containing over 400 unique locations.*
- *Intelligent defences that react to every move you make.*
- *Sampled sound effects.*
- *Unique 'Picture in Picture' mode. Allows you to monitor enemy movements.*
- *Over 1/3 million lines of code crammed onto 1 disk!!*

Getting in was the easy part: getting out will take everything you've got!



Screen shots are only intended to be illustrative of the game play and not the screen graphics which vary considerably between different formats in quality and appearance and are subject to the computers specifications.

FORMAT AVAILABILITY: Atari ST • Amiga • IBM
GRAPHIC SUPPORT: CGA, EGA, Tandy 16, VGA, MCGA
SONIC SUPPORT: PC Speaker, Ad Lib, Roland
MEMORY REQ: 512K (640K for 256 colour mode)

THE ASSEMBLY LINE

REAL WORLD

Game designed by Ricardo Pinto.

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Balance of Power 1990
East v West!

This is one of the all-time classic computer games: it has a hell of a reputation and it's still selling in large quantities at its regular price of £24.99. Your mission, should you decide to accept it, is to lead one of the cold war superpowers to global domination by politics alone and without destroying the world through nuclear conflict. Good luck – but what you'll really need is good judgement…

Back up the Disk!

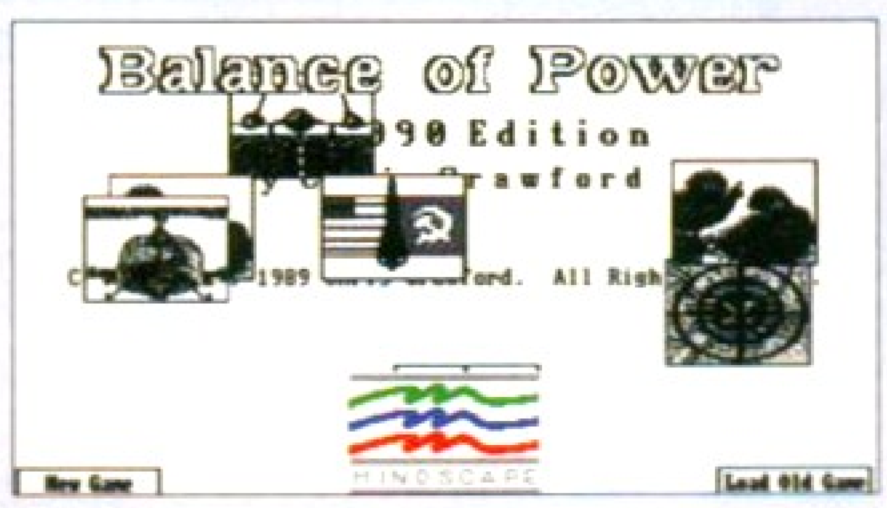
Balance of Power is a very sophisticated game. Because it is constantly updating the global political situation, it continually saves the new information back to the disk. It also manages to save your game automatically between each turn.

This makes it very important to back up your disk. Turn to Page 20 and read the instructions there if you don't know how to do this. When you have a copy of the disk, make sure you use the copy and NOT the original disk when you are playing the game.

Getting Started

You can either run *Balance of Power* from your Workbench or you can simply insert the disk and switch on your Amiga, and it will load itself.

If you put the disk in with Workbench loaded, just double-click on the disk icon then double-click on the game's icon to get going.

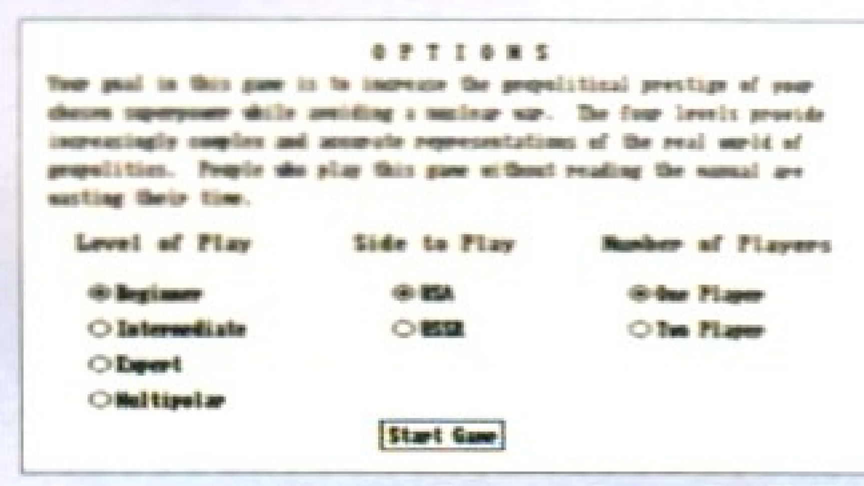


You should now be faced with this screen, where you simply face a choice of starting a new game or loading an old one. You haven't played an old one yet, so simply click on new game.

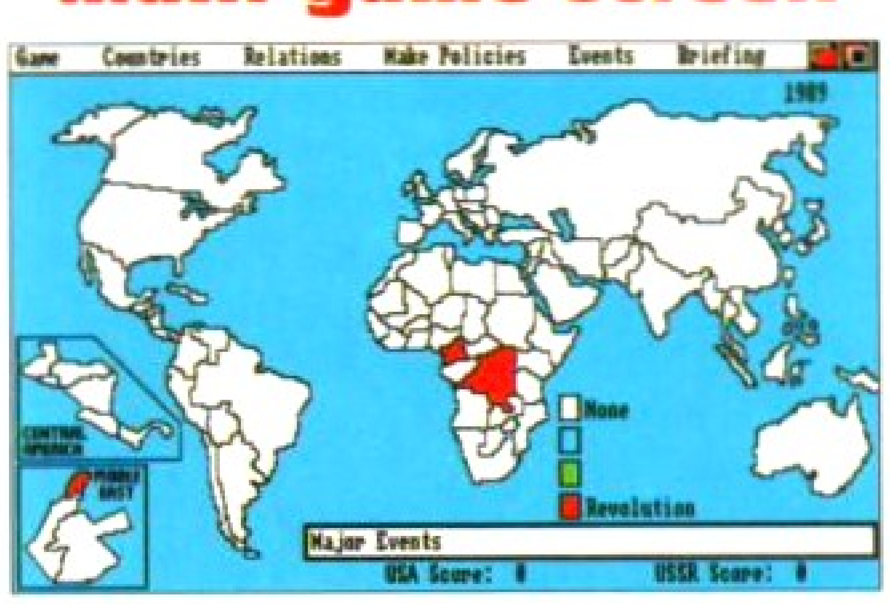
This options screen will now appear. "People who play this game without reading the manual are wasting their time" it says. This is a lie: this guide contains all the information you will ever need to become an expert.

Simply click on the circle next to the options to change them: but for now, leave them alone. You have a choice of playing either Russia or America, but the game is no easier or harder whichever you play. It's just that your point of view is different. You can also opt for a two-player game, on which a couple more notes later, but it's a more intense game with one player, even if you and your mates co-operate to play.

The other choice is the level of play. It is a good idea to master each level of play, starting with the simplest, before moving on to the next. Otherwise you'll just flounder and not really enjoy it. For now, just click on Start Game to get going. We'll assume you're playing the USA.



Main game screen

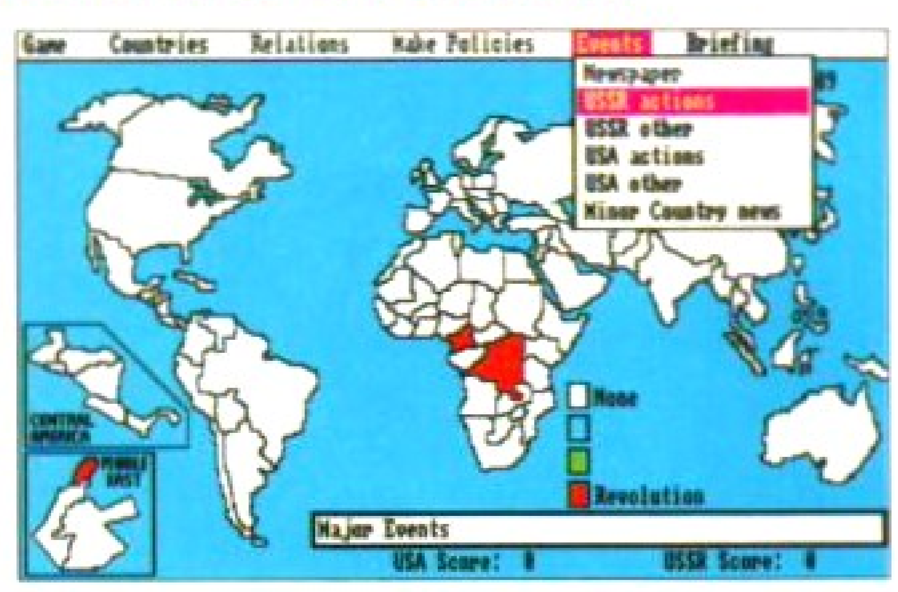


There isn't a lot to *Balance of Power*: provided you count the political machinations of all the countries of the world as not a lot, that is! The whole game, more or less, is played on this one game screen.

All you have to do is determine the relations between your own country and others, and try to influence other countries so that they come round to you way of thinking. Your way of thinking, incidentally, basically means right-wing if you're playing the USA and left-wing if you're boss of the USSR.

What you have to do is support insurgency in delicate countries where the government is against you, to try and install a friendly government, and at the same time bolster up regimes that are friendly but a bit unstable by giving them military aid. It's all about trying to get them to like you.

Where to start



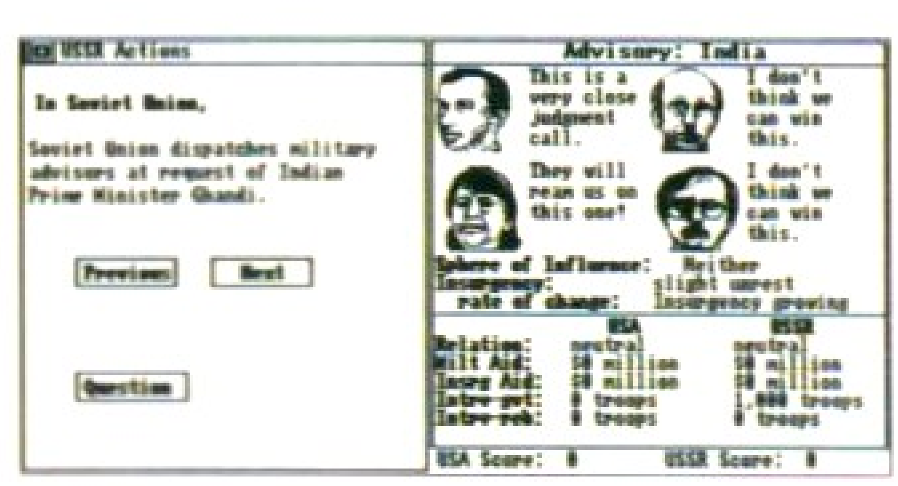
You should start your turn by checking on the actions of the opposing superpower. You can do this by going to the 'Events' menu – remember, menus are always sel;ected with the right mouse button – and selecting the USSR Actions option (assuming you're playing the USA, that is). You will now be presented with news on a series of actions your opponents have taken, and pictures of four advisers, each of whom will advise you whether or not to question the Russians' actions.

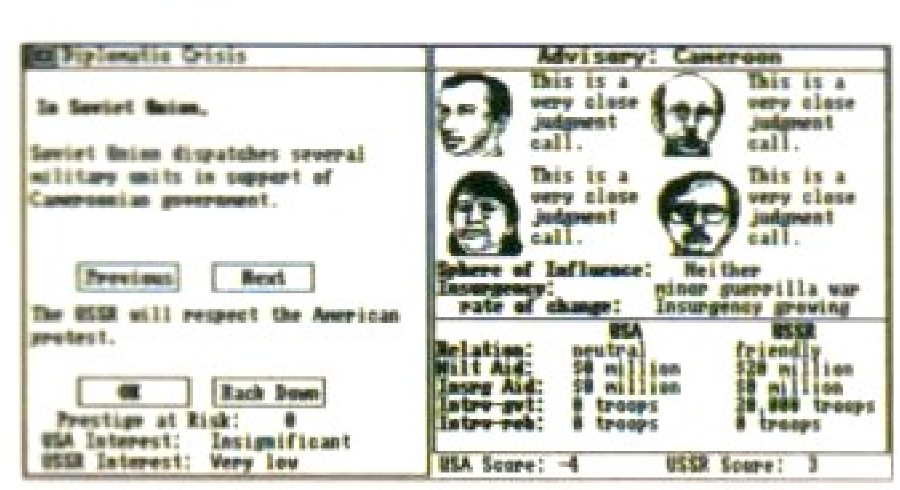
Crisis politics

If the advice seems positive, press the Question button to send a message to the USSR that you don't like what they are doing. A crisis is starting! At first this will be in secret, so there's nothing at stake. If you can't come to an agreement straight away, the crisis will go public and Prestige points will be at stake. An indicator tells you how much prestige is at stake on each round of the crisis.

The aim of the game is to win prestige, so you don't want to back down and lose lots of it. On the other hand, the last thing you want to do is keep up the confrontation and take the world to Defcon 1: because if that happens, the nukes fly and it's all over for everyone. Which means you've lost BIG!

If you negotiate successfully through all the USSR actions, you should then click in the little box at the top left of the screen to move back to the main screen.

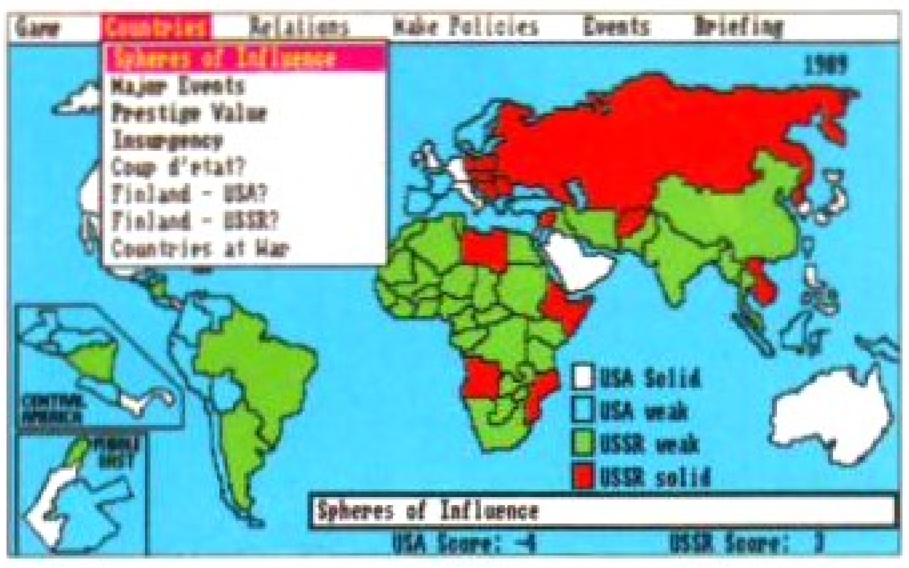




Advisers

The other feature of the crisis screen is your expert advisers. They're there for a bloody good reason and they know what they are talking about, so it's a good idea to do as they advise. Occasionally you might fly in the face of their advice and get away with it: but the one big tip for this game is listen to your advisers and do what they say.

Checking world status



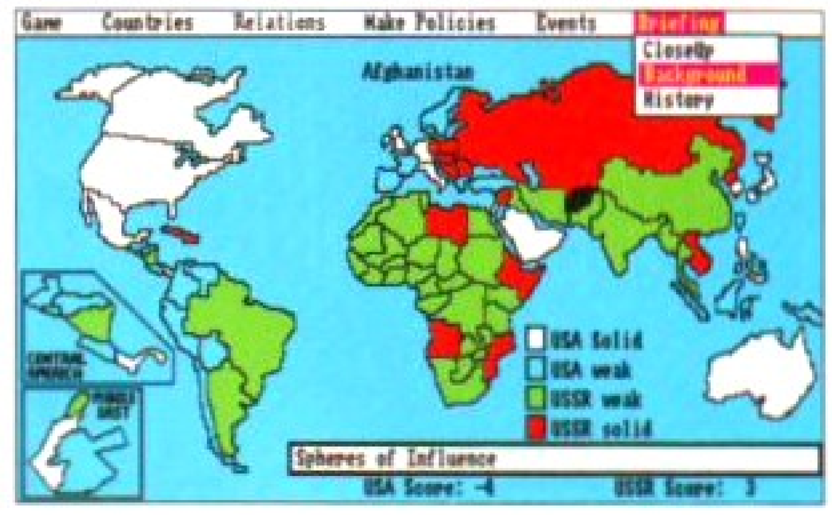
there are a number of menu options which will allow you to explore the state of the countries in the world: which superpower they get on with, how important they are, that sort of thing. Just look in the 'Countries' menu.

Seeing where you are

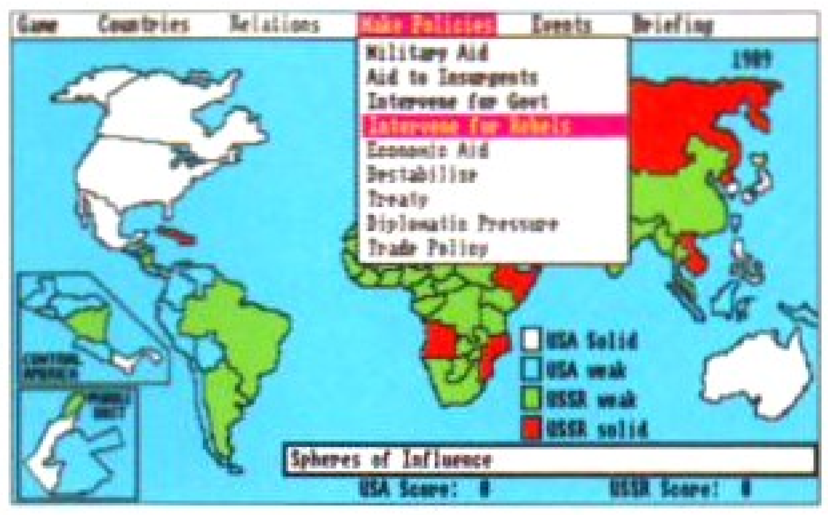
If you select your own country or the opposing superpower, you can check on a number of things about your status in the world from the 'Relations' menu. What you are looking for initially is weak spots: countries to target for your diplomatic and military attentions.

Picking a target

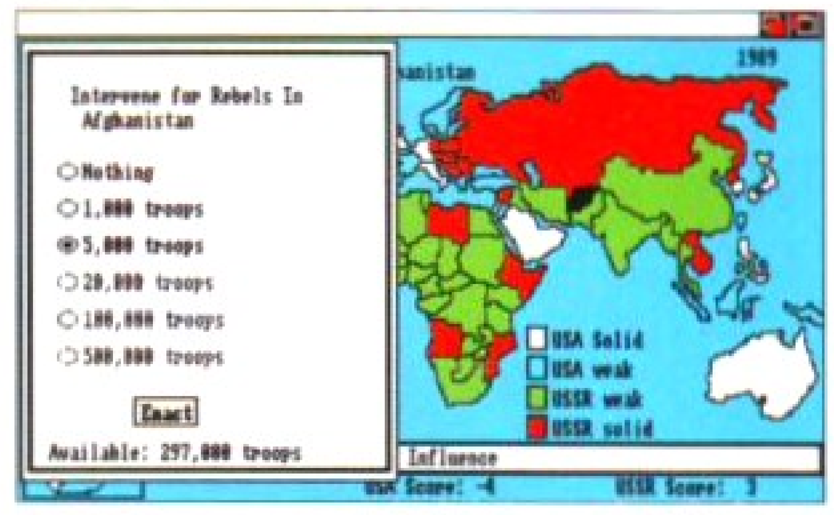
To target a country for your attentions, click on the country and it will be highlighted in black, as well as its name appearing. You can now find out a certain amount about it from the Briefing menu



Now you might decide you want to intervene. Go to the Make Policies menu and decide what you'd like to do about the country you have selected. Sending the troops in is always going to be controversial: try to be delicate at first...



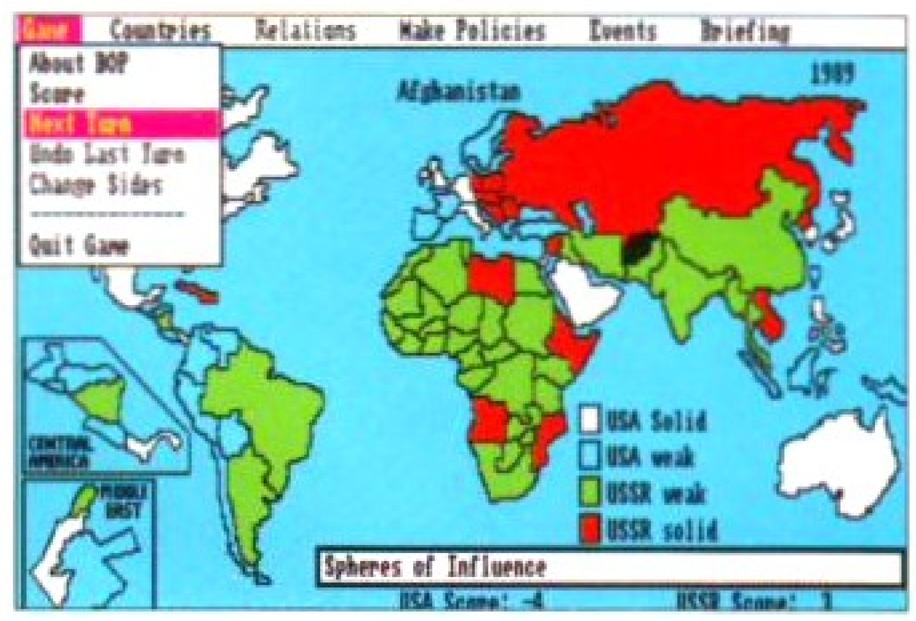
...and this is where you decide how much of a particular kind of aid you wish to offer. I don't think sending the troops in is very clever... but we'll see at the end of the turn.



Ending your turn

Go to the 'Game' menu when you're happy with your year's work and select 'Next Turn'. This menu also features the 'Change Sides' option: this isn't for defectors, it's for switching from Player One to Two in the two-player game.

At this point, as you end your turn, the computer saves the game back to the disk. This can take a while, but be patient. If this is the first turn of a new game, you will then be stopped by the manual protection.



Mastering The Beginner Level Game

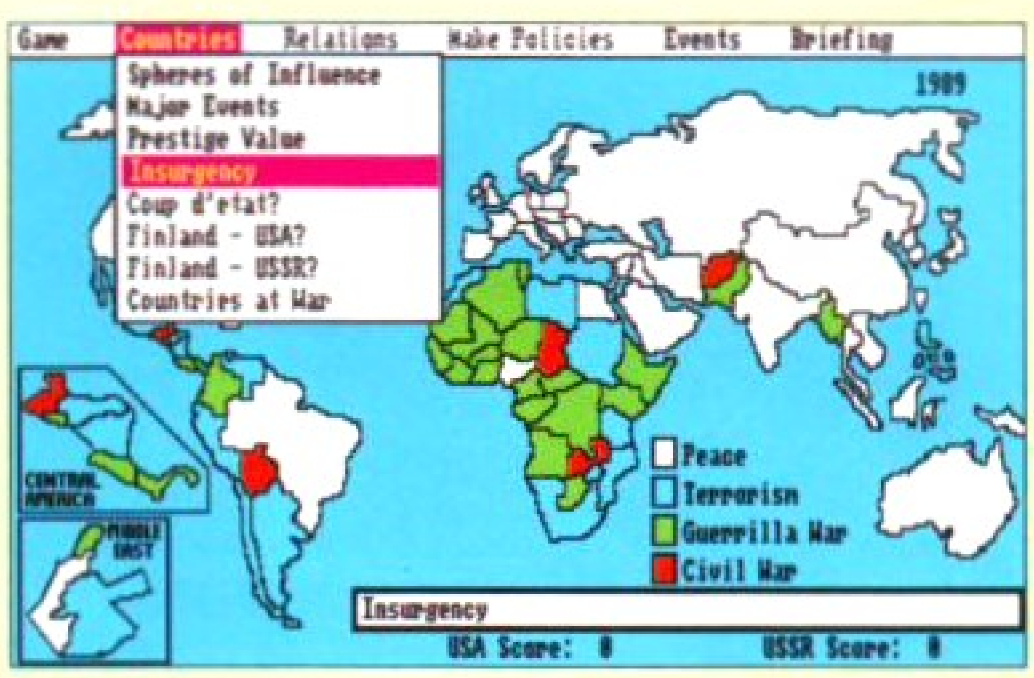
The Beginner level is all about insurgency and your opponent's actions...

Aims

The Beginner level is straightforward: you only have two crucial questions to ask each turn. One: who's having an internal war? Two: what are the opposition doing? It's easy enough to get the answers...

One: check out the Insurgency map from the 'Countries' menu. Civil wars are of great interest: guerilla wars less so, but they still present opportunities.

Two: consult the opponent's 'Actions' menu and consider whether you wish to take them to a crisis. It's that simple.



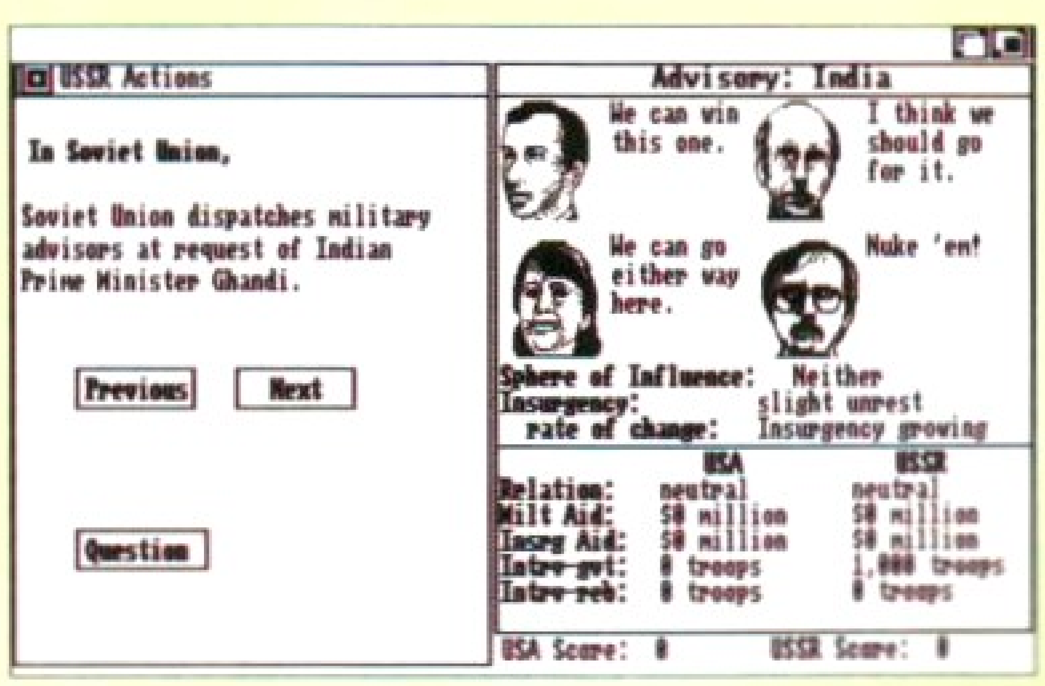
Principles

The central principle underlying this level of the game is based on the Domino Theory. A superpower cannot support insurgency in a country unless it has troops in a nearby country, so if you get a foothold somewhere it helps you on and on ... just like dominoes knocking one another down.

This makes it important to prevent the opponent from placing troops in new countries and to put your own troopsnext to unfriendly countries: remember to place them carefully. Stop the enemy from putting troops near vulnerable friendly nations.

Important insurgencies

Insurgencies don't happen by accident or at random: they are the result of conditions in the country. A strong government will not have too much trouble with terrorists, but a weak one will. Look for states that are small, poor and have little history of democracy.



Crucial Crises

The main way of scoring in the Beginner level is through correct handling of crises. While you may only gain ten points or so turning a government your way, you could well lose 100 points backing down in front of the world. This makes crises the most important part of the game.

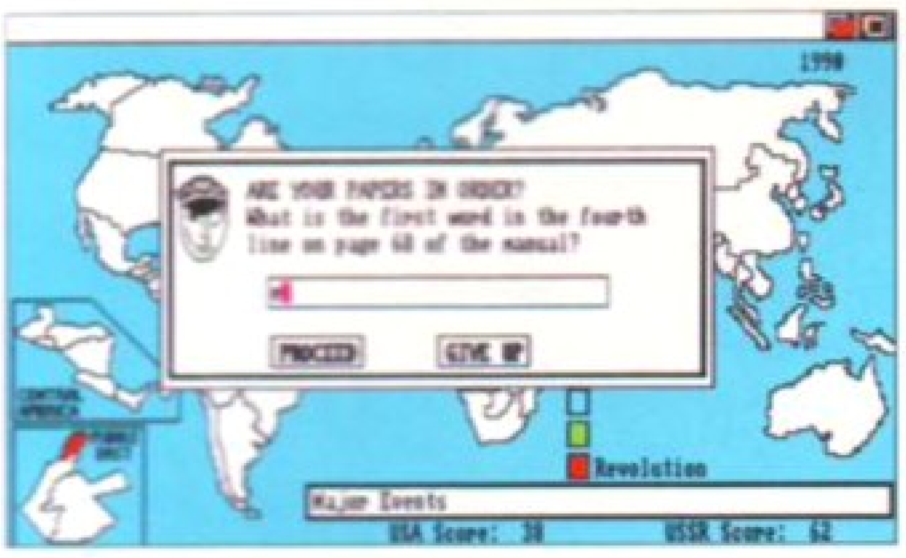
Know your enemy...

...and your friends. Frequent looks at the Diplomatic Relations map will help at first, but you should soon get to know the general situation. remeber the whole idea is to support the friendly nations and undermine the unfriendly ones.

Use your judgement

"You have to use a skill seldom required in most computer games: judgement" claims the game's author, Chris Crawford, in his manual for *Balance of Power 1990*. What he means is that all actions are interlinked with one another and what causes what isn't always clear. You have to use your own 'intelligent guesswork'.

Manual Protection



Because the disk is not protected – you can make as many copies as you need for your own use – the game is made secure by 'manual protection'. At the end of your first turn, you will be asked to enter a password from the manual. Now, obviously you don't have the manual: so we've printed the complete list of passwords below in the panel entitled 'Those passwords in full'.

More crises...



The computer now calculates all the moves for the year. If you've made any moves the opposition doesn't like, they'll confront you over it in just the same way you questioned their actions. Again, pay attention to the advisors.

At this point, it should be 1990. Unfortunately in this case it won't be: because, being churlish and refusing to back down after sending troops into Afghanistan, you've destroyed the world. Though you're bound to do this a few times at the start, it's not big or clever: and you don't get any prizes for it.

The aim of the game

Each turn is a year, and the aim is to survive until the year 1997 without blowing the world up. Further than this, by careful manipulation of the diplomatic confrontations and by making allies around the globe, you aim to increase your Prestige and decrease your opponent's.

If your score is greater than the other superpower's, you've won: but if your score is less than 200 points ahead, it was a close thing. A convincing win is beating the opposition by greater than 700 points.

Always remember, the world is very sensitive to the global politics of the superpowers. The more war-like you are with the enemy, the more unpleasant the world becomes...

THOSE PASSWORDS IN FULL

You will be asked for a password at the end of the first turn of a new game. The reference to the correct password takes the form word number, line number and page number, and these are reproduced faithfully below. So, for instance, if you are asked for word 5, line 3, page 8 you should come up with the word 'shade'. You may need to click the mouse pointer by the pink cursor before you can type the word in.

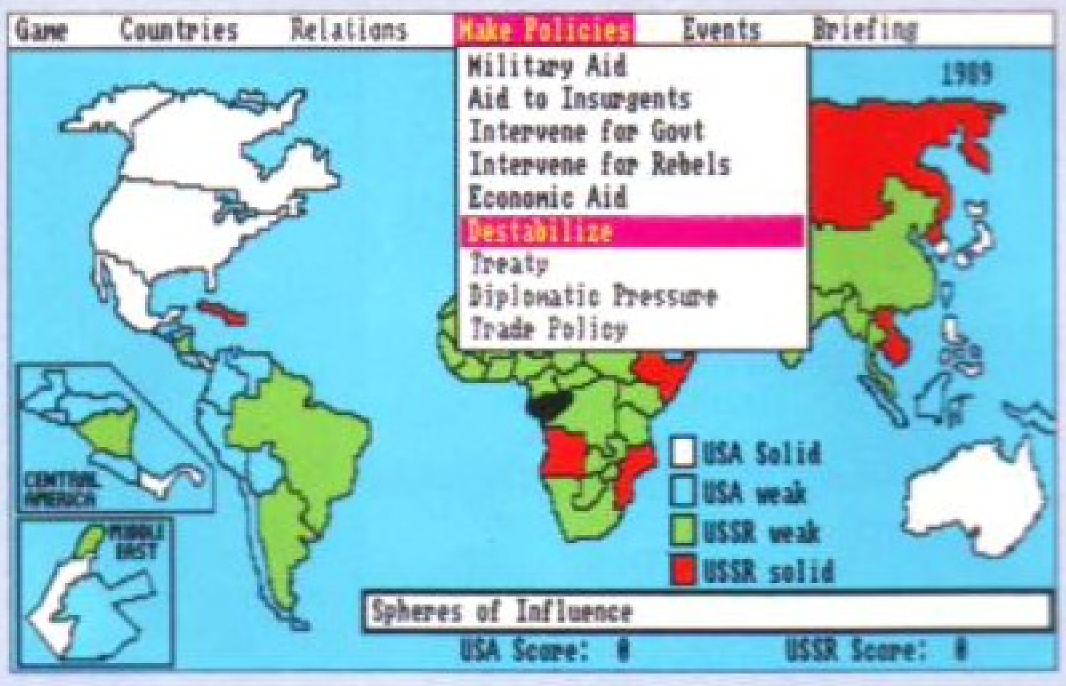
Page	Line	Word	Password												
				25	4	2	client	50	9	6	here	70	1	1	concerns
				36	1	7	attempt	51	7	9	pirated	71	2	1	notch
8	3	5	shade	37	3	1	praises	53	2	3	mouse	72	3	3	stake
13	2	7	civil	38	4	4	protect	57	15	1	ability	76	4	2	mountain
14	5	6	island	41	3	2	troops	58	12	9	bang	80	1	3	army
15	5	1	unseemly	45	1	5	over	59	1	6	fingers	81	4	1	consumers
19	1	5	three	46	1	3	generate	60	16	19	spooks	83	2	1	trivial
21	2	8	better	47	15	8	person	68	4	1	example	84	3	1	extremist
24	3	2	answer	50	8	4	word	69	5	4	capita	85	3	1	object

Mastering the Intermediate Level game

Introducing three new concepts: the Coup d'Etat, Economic Aid and Destabilisation

Aims

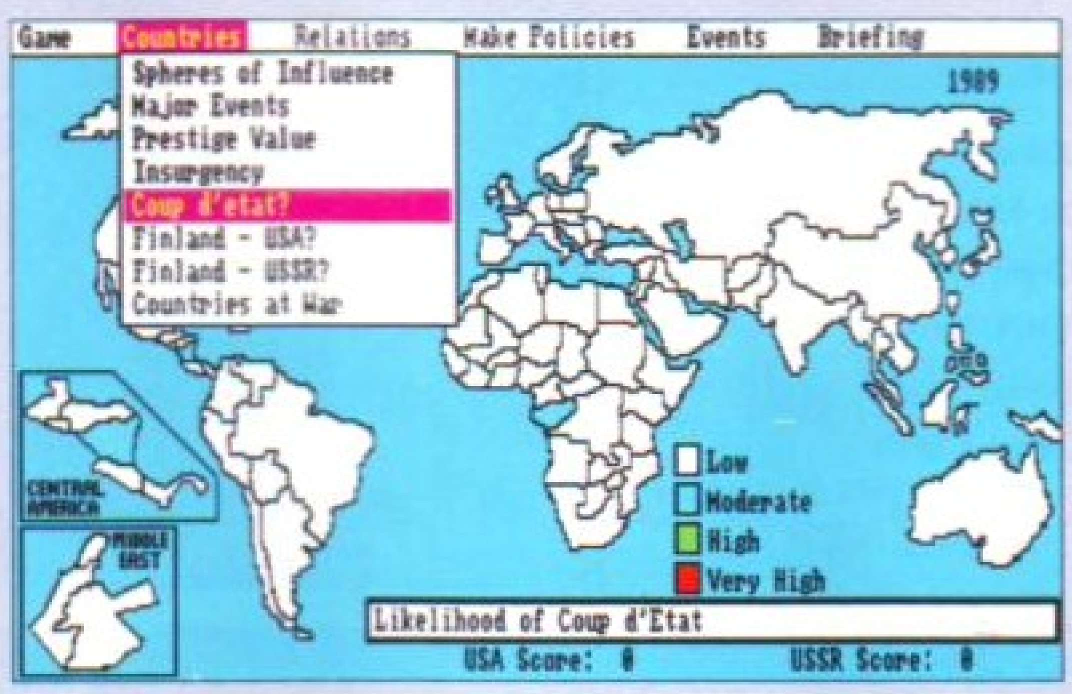
Once you've mastered the Beginner level, you're ready for Intermediate. This introduces a major new element to the game: the concept of overthrowing unfriendly governments using the Coup d'Etat. essentially, though, your goals remain the same: to topple unfriendly regimes: to use crises to prevent objectionable actions by the opposing superpower: to defend your own actions in crises.



Principles

The only real difference is you now have three extra tools to do the job with. Rather than just military aid, you can now have an economic effect on countries: so in the 'Make Policies' menu you will find Economic Aid and Destabilistaion. And in the 'Countries' menu you can find updates on Coups d'Etat going on in the various countries.

The game is now that bit harder - the opponents will be a bit more awkward - and it will change more - so you can't rely on having the same friends each time. Remember that what you have done for a country in the past is not so important as the current state of the country.



Coups and their effects

A coup basically means a change of government: normally a violent one, but changes are equally possible through an election in the civilised, stable, more democratic nations.

In a coup, the insurgents become the government and the government heads for the hills to become the insurgents, so it's a pretty safe bet that an anti-you governemt will swing to become pro you: and that's the general idea. There are some exceptions. When a coup takes place, it's effect on the superpowers' scores will also be shown.

A country is vulnerable to a coup if the economic situation is unstable and discontent increases, so the following new menu options are the key...

Destabilisation

if an unfriendly government is looking unstable when you check the map from the 'Coups menu', you can push it over the edge. Destabilisation (selected from the 'Make Policies' menu) means causing a litle trouble, but it costs very little to do. The only snag is your opponent might well object.

Economic Aid

If a friendly government is looking shaky, you can shore it up with a little Economic Aid, again from the 'Make Policies' menu. This will reduce your GNP, meaning you have less money for military spending. Use it carefully, and bear in mind that the poorer a country is, the more the money will mean to it.

Mastering the Expert Level game

Three more new ideas: Finlandization, along with Treaties and Pressure to encourage or dissuade it...

Aims

When you have got completely in control of the Intermediate game, you're ready to become an expert. The difference now is the concept of Finlandization, based on what happened to Finland after WW2. Because Finland had been an ally of Nazi Germany, no-one wanted to help them stand up to the USSR: so Finland fell completely under Russian influence without the USSR ever actually having to lift a finger against it. The key to the Expert level game is encouraging or discouraging Finlandization.

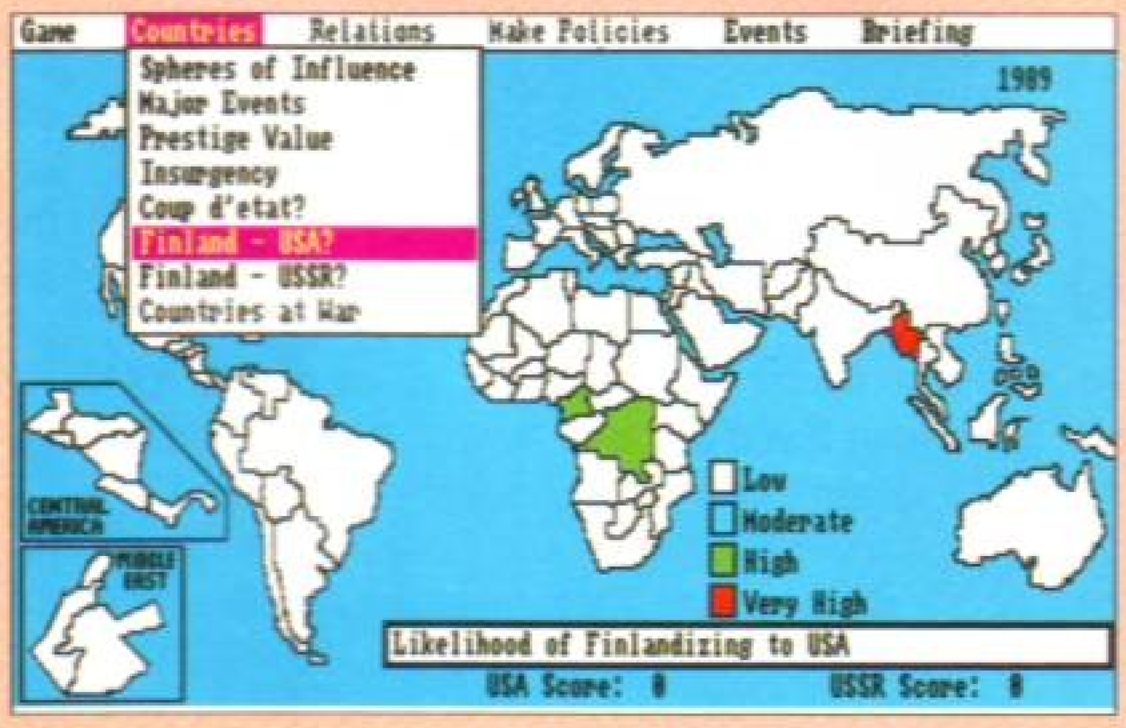
Principles

The big difference now is that indirect actions become very important. If you seem to be very hostile or agressive, for example, more countries are liable to want to be on your side. If you back up your treaties, countries will trust you. If you have a lot of troops in an area, the countries nearby will feel more secure.

Finlandization

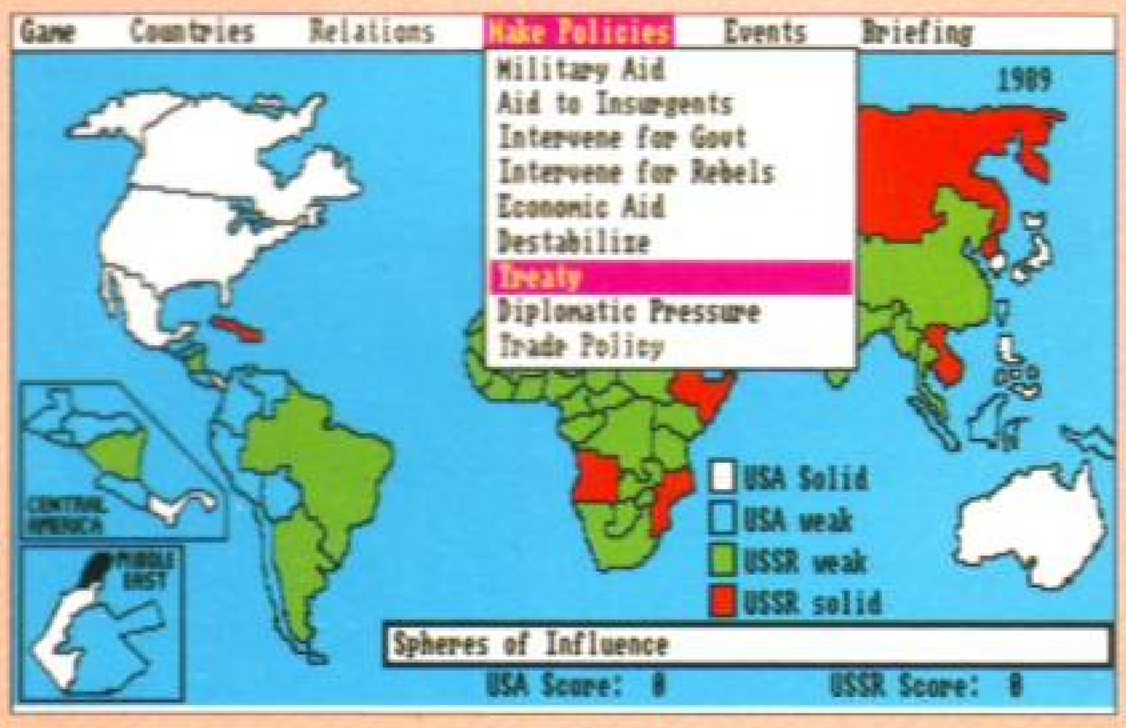
Any country that feels very threatened by a large military power close to it, and lacking sufficient military power or support, may be inclined to Finlandize. It will become friendly to the power that threatens it. Countries in Europe, caught between the Superpowers, are particularly vulnerable. When a power Finlandizes, a message appears where the country's leader praises the Superpower it has aligned with. It doesn't actually say 'Finlandized', but you'll know what's going down.

The 'Countries' menu contains maps that show the likelihood of Finlandization, but these can be misleading because they are based on information from the previous turn.



Pressure

The idea here is to exert sufficient diplomatic pressure on a country to make it paranoid about its position: it takes a number of forms, from subtle messages to dealings with the country's worst enemies. If you worry a country sufficiently, it should Finlandize with you to get protection. Indirect pressure is also possible: if you win a big crisis, powers may align themselves to you in fear.



Treaties

Another way of stopping a country Finlandizing with your opponent, along with military and economic aid from the first two levels. These work on a very simple level, but you will be expected to back them up.

Mastering the MultiPolar level game

It's no longer just the big boys: now all the countries can pursue their own policies...

Aims

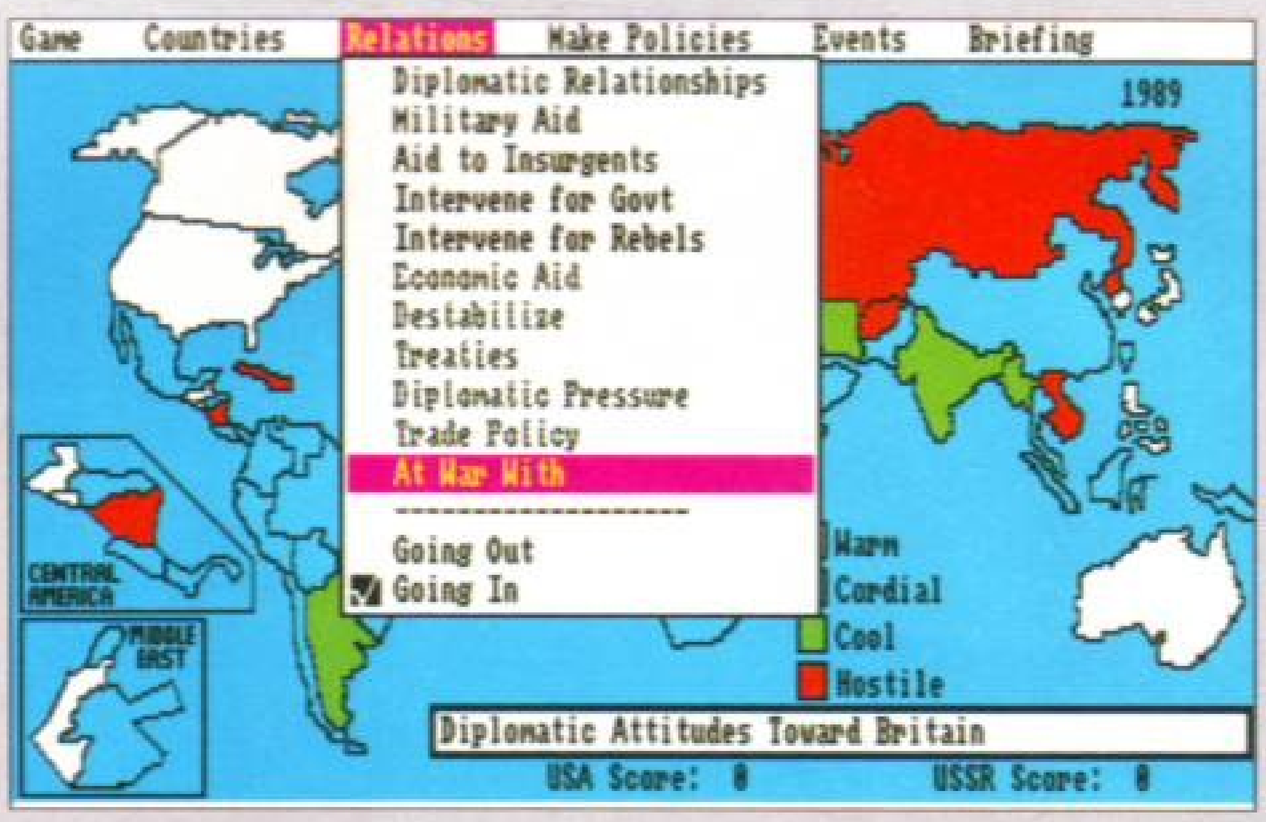
This is the big time: only attempt it if you're an expert Expert. All the countries in the world, rather than just the two superpowers, now follow their own policies: if only at Beginner level, which means they can ship weapons or troops. Your aim should be to keep track of activity throughout the world and keep your allies under control.

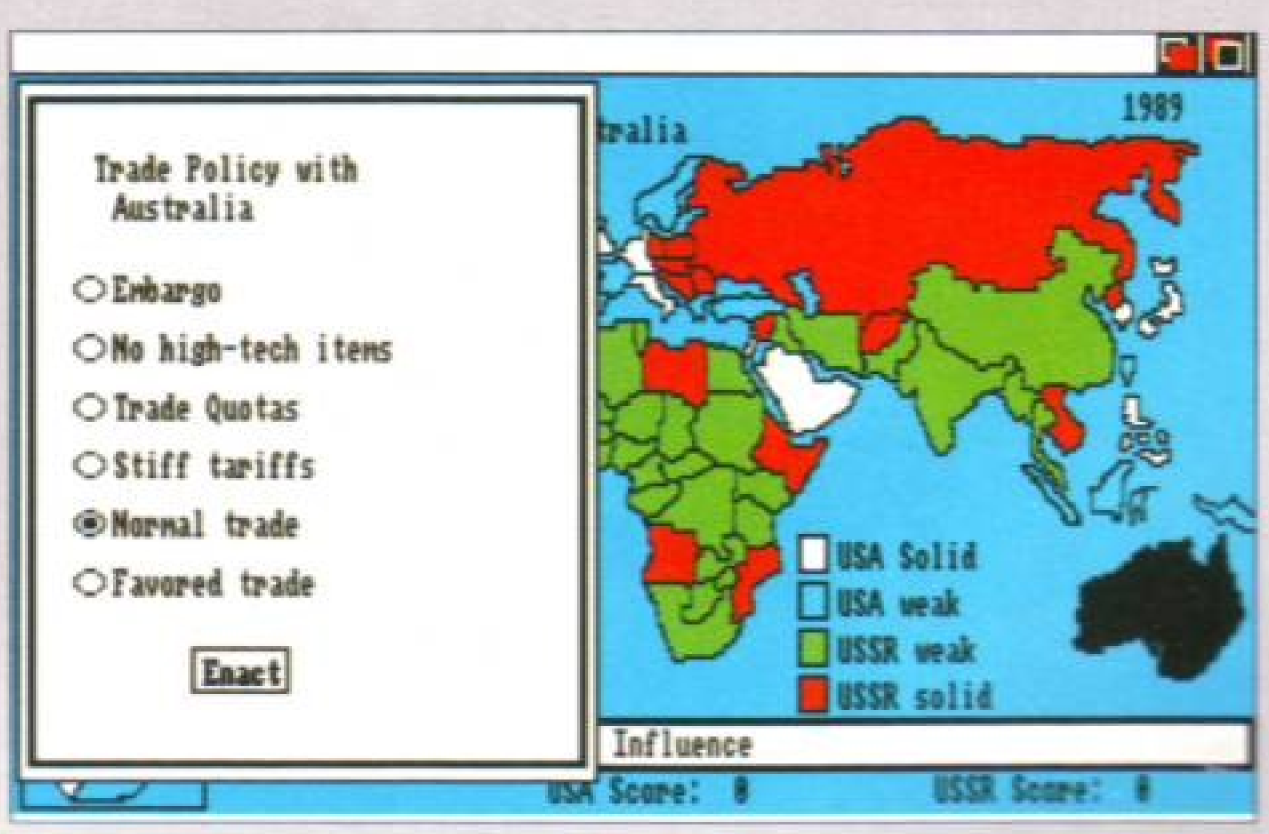
Principles

If countries who are allied with you go to war, you have to either help them and cause a crisis or cop out and see them just vanish. So you must try to keep them under control. Lead by example: the less warlike you are, the better they will behave. You can now use the 'Crisis' screen to question the actions of minor countries and stop them in their tracks.

Minor country crises

These work in a similar way to USSR and USA crises. You can challenge a policy if you have influence over a country. Influence derives from: a) good diplomatic relations: b) a strong treaty: c) having troops stationed there: d) aid going to the government. You can escalate the crisis if they don't give in, but the crisis remains purely diplomatic and you won't lose Prestige.





Minor country wars

These are particularly awkward and should be avoided if possible. Two menu optiions show what's happening in this field. The losing country always takes on the political colour of the winner.

More relations

You can now check the diplomatic tendencies of any country by selecting it and going to the 'Relations' menu. You can check 'Going out' or 'Going in' to get what that country's attitude is, or how other countries feel about that country.

Trade

You can now exert an even more subtle influence over different countries with the 'Trade' option of the 'Make Policies' menu. This has no direct economic effect,: it is simply another form of diplomacy.

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Actual PageStream 2.1 screenshot

ART IMPORT	ProPage	PageStream
IFF (24 bit)	Y	Y
TIFF	N	Y
GIF	N	Y
EPS	Y	Y
EPS – view TIFF preview	N	Y
ProDraw	Y	Y – *Editable!*
Aegis Draw	Y	Y – *Editable!*
GEM	N	Y – *Editable!*
IMG	N	Y
MacPaint	N	Y
TEXT IMPORT		
WordPerfect	Y	Y
Excellence!	N	Y
Scribble	Y	N
ProWrite	N	Y
ASCII text	Y	Y
COLOUR		
CMYK	Y	Y
RGB	Y	Y
HLS	N	Y
HSV	N	Y
Pantone Colours	Y	N
UCR/GCR	Variable	Fixed

FONTS	ProPage	PageStream
PostScript Type 1	N	Y
PostScript Type 3	N	Y
Compugraphic	Y	Y
Outlines on Screen	Y	Y
# Outline Fonts Included	2	18
Typographic Precision	1 point	0.01 points
Max Font Size (any type)	720 points	183,000 points
INTERFACE		
Framed Text	Y	Y
"No Frames" Text	N	Y
# of Open Documents	1	Unlimited
Linked Text Processor	Y	N
Font Caching	Manual	Automatic
View Magnifications	7 fixed	User Scalable
Zoom View	N	15 – 1500%
Templates	Y	Y
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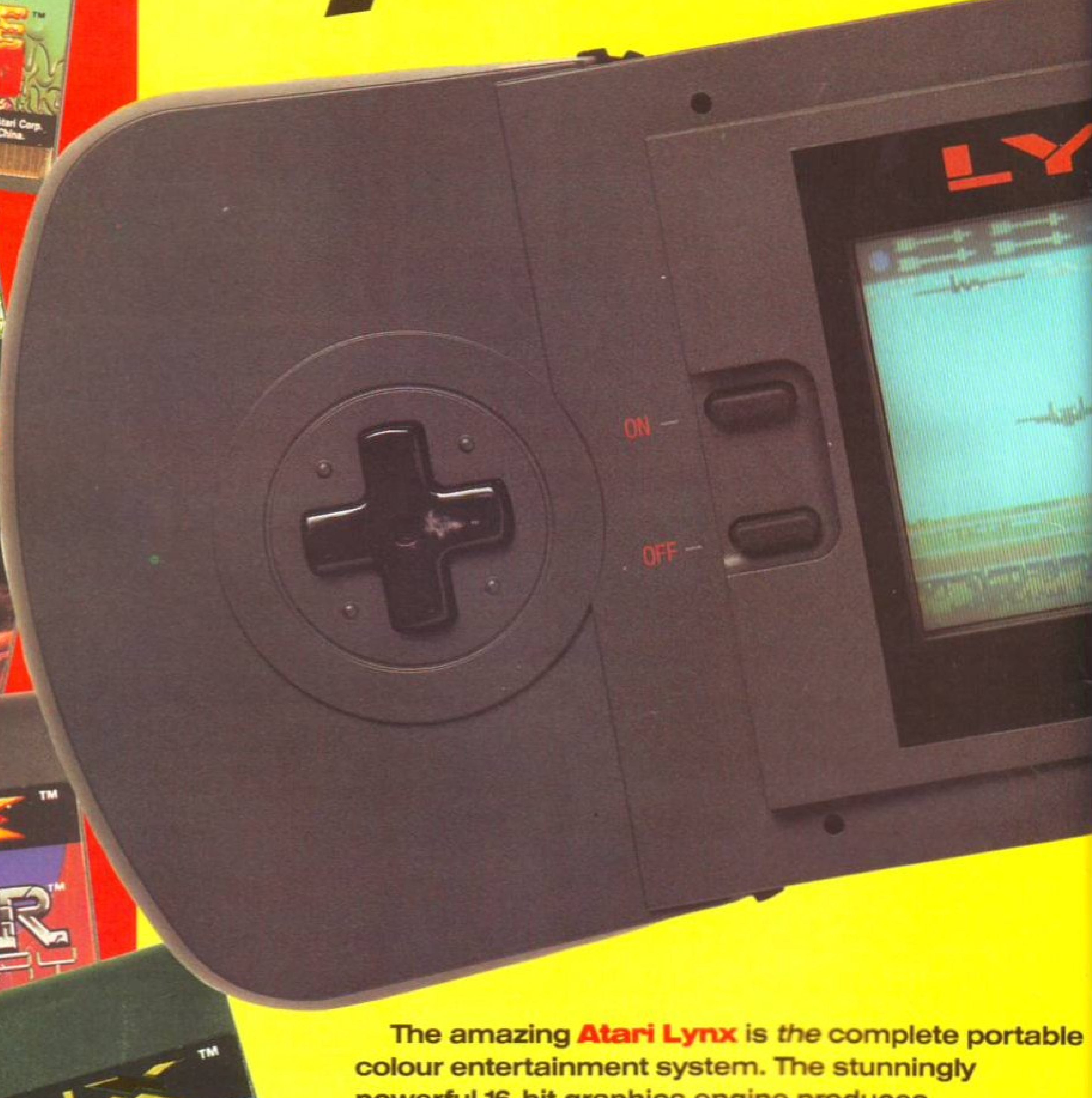
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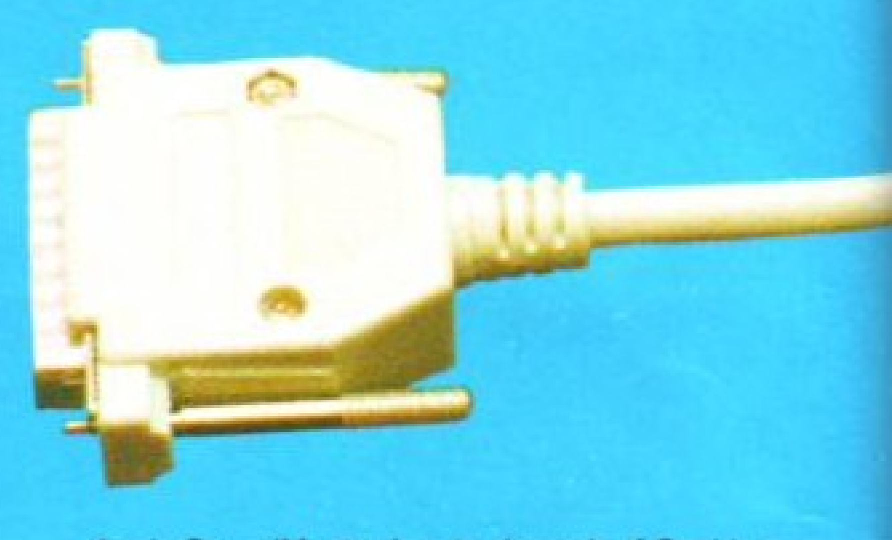


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How it Works: Real-time 3D games

We thought the best way to find out how 3D games are created was to ask the experts: so **ANDY BEVERIDGE** and **ADRIAN STEPHENS** of The Assembly Line give away their trade secrets as they tell you how it's done. **DAMIEN NOONAN** does the basic interpreting...

Let's start off with what little I knew of 3D before I started. All the objects in a game – ships, planes, buildings, landscape, rooms, the lot – are defined by 3D coordinates, one coord for each corner point or 'vertex' on the shape: so a cube has six points defining it. The coordinates define where the point is in three directions: x for left-right, y for up-down and z for into and out of the screen, or depth.

All 3D games have to store the three coords for all the objects and then translate the 3D definition of an object onto a 2D screen to decide how it's seen. And it's the latter that's tricky. OK, over to the experts...

Step 1: PolyFilla

If you're programming a 3D game, where do you start?

Andy: I would have thought that everyone starts with a polygon filler. That's the most important place to start. Even before 3D.

Adrian: You give it coordinates on the screen, you tell it how many of them there are, and it fills it.

How does it work? It's just 2D, isn't it?

Adrian: You have to convert everything to 2D coordinates before you can draw it. You perform perspective calculations, that gives you 2D coordinates and you fill between those. The way the screen is addressed, the only really sensible way of doing it is by splitting it all up into lots of little horizontal lines. You calculate the two ends of one scan line, you fill that, and so on down the screen.

2 Clipping

Adrian: The only complication is that these 2D coordinates could well be outside the screen. So you have to deal with that.

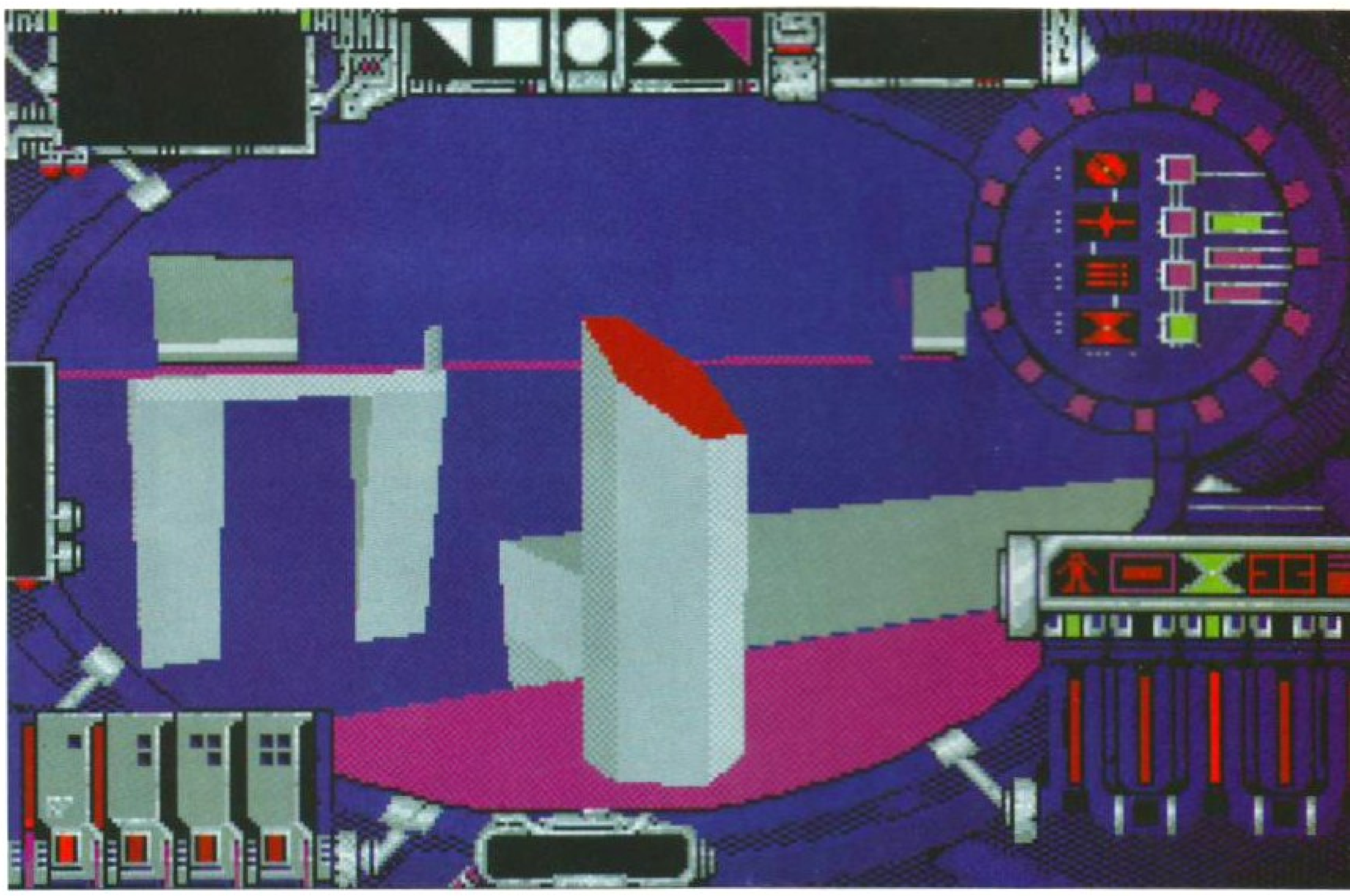
Andy: That's what is called clipping. Effectively you take a polygon and clip off the bits you can't see.

3 The 3D bit

So the 3D part is just a list of 3D coordinates, X Y and Z, for the objects: just a simple 3D map?

Andy: The 2D part of the system and the 3D part of the system are very separate indeed. The 3D part just converts the 3D coordinates into 2D, then there's a separate 2D part to draw them all.

Adrian: Generally, it is very simple. All you do is you get all your 3D coords, then multiply them by a matrix, divide by z and multiply by a constant and there you go, that's your 2D coordinates.



So what's the matrix for?

Adrian: You define your shape with 3D coords, XYZ. Now, when you view it, it can be at any angle relative to you. so what you do is you calculate a matrix – you know what a matrix is? (yes, we remember them from O Level maths) – you define a matrix which represents the rotation you have to apply to this shape so it looks right to your eye. Now you have new 3D coords, which are effectively 3D coords relative to you. Rather than relative to the absolute world, they're relative to your eyepoint. Then you just apply perspective to those points.



4 Perspective!

So how do you apply perspective?

It's very simple. First of all, you've got XY and Z coords. The 2D x coord will be some constant times x over z, and the 2D y coord will be some constant times y over z.

Andy: It just makes them get smaller as they get further away.

Adrian: The larger z is, which is the distance into the screen, the smaller the numbers become.

(If you think about this, it really is very simple. The further something is away, then the greater the z number will be. So when you divide your other two numbers by z, they will be much smaller and hence the whole object will be smaller on the screen and look further away. Isn't maths logical?)



Adrian: Then you multiply them by a constant to make them more reasonable, you add on the centre of the screen, to make them even more reasonable, and that's it.

Time for an overview...

Adrian recaps. You start with the polygon filler. After that, find some way of storing the shapes coords and some way of calculating the matrix, apply the matrix to the coords, do the perspective calculation to give your 2D coords and then fill your polygon between the coords.

Advanced Level

OK, so I'm beginning to think we've got the basics of 3D sorted out here. Then Adrian pipes up again. "If you do all that stuff, really all you can do is spinning cubes on the screen. And that's no use to anybody. That's why the 3D demo that people generate first is always a 3D cube spinning on a screen, because that's easy". "Where you go next is the fiddly bit" adds Andy. Oh. So what next? How do you go about getting from a spinning cube to a real game?

"First of all you have to have a number of objects" Adrian starts off. "You need to keep a list of these objects and you need to keep a record of where they are, the angle they're at and so on. Assuming you could store all of these objects individually, like you could the single cube, you need a way of making sure you draw the ones at the back first. We ought to describe the painter algorithm." All right then, do it.

The Painter algorithm

"This is incredibly trivial: all it says is you have to draw things that are further away from you before you draw things that are closer to you, because things that are closer to you obscure the things that are further away. You don't ever see the further away ones flicker onto the screen before the closer ones are drawn, because it doesn't actually let you see the screen until it's finished drawing them."

"Why's it called a Painter algorithm?" I ask stupidly. "Because that's the way a painter works: he paints things, then paints other things over the top of them" replies Adrian. Hmm. Of course. Now let's find out why clipping is the really difficult bit of the whole thing...

Advanced clipping

"It's not that it's necessarily difficult to do, there are a number of ways of doing it" Adrian continues. "What a lot of people do, one of the simplest, is they find the coords of the original polygon, they feed it through something that clips off the top, then they feed it through something that clips off the bottom and in the end they come out with another polygon that could have an awful lot more edges."

"That turns out to be quite slow, which means you've got to resort to techniques that aren't in the book. Ours, for instance, is based entirely on clipping the y coord: it doesn't bother working out vertically. Horizontally we just do it on a line-by-line basis, it's very simple." "Can you say that?" objects Andy. But Adrian doesn't repent.

Points of View

When it comes to a game, there's the player to think about too. "There's another bit of 3D maths in that too" says Andy. "The player's viewpoint is an object as well, a point in space, so you have to define the orientation of that as well."

Adrian describes how the view is worked out. "The player has his matrix, which means which direction he's facing in, that sort of stuff ... so that means all that's taken care of automatically, effectively. To calculate the viewpoint all you actually have too do is subtract that object from all the

Modelling a plane for a flight sim...

MARTIN MOTH, one of MicroProse's game-design team, reveals how a plane is modelled as a 3D object and tells us about their new flight sims...

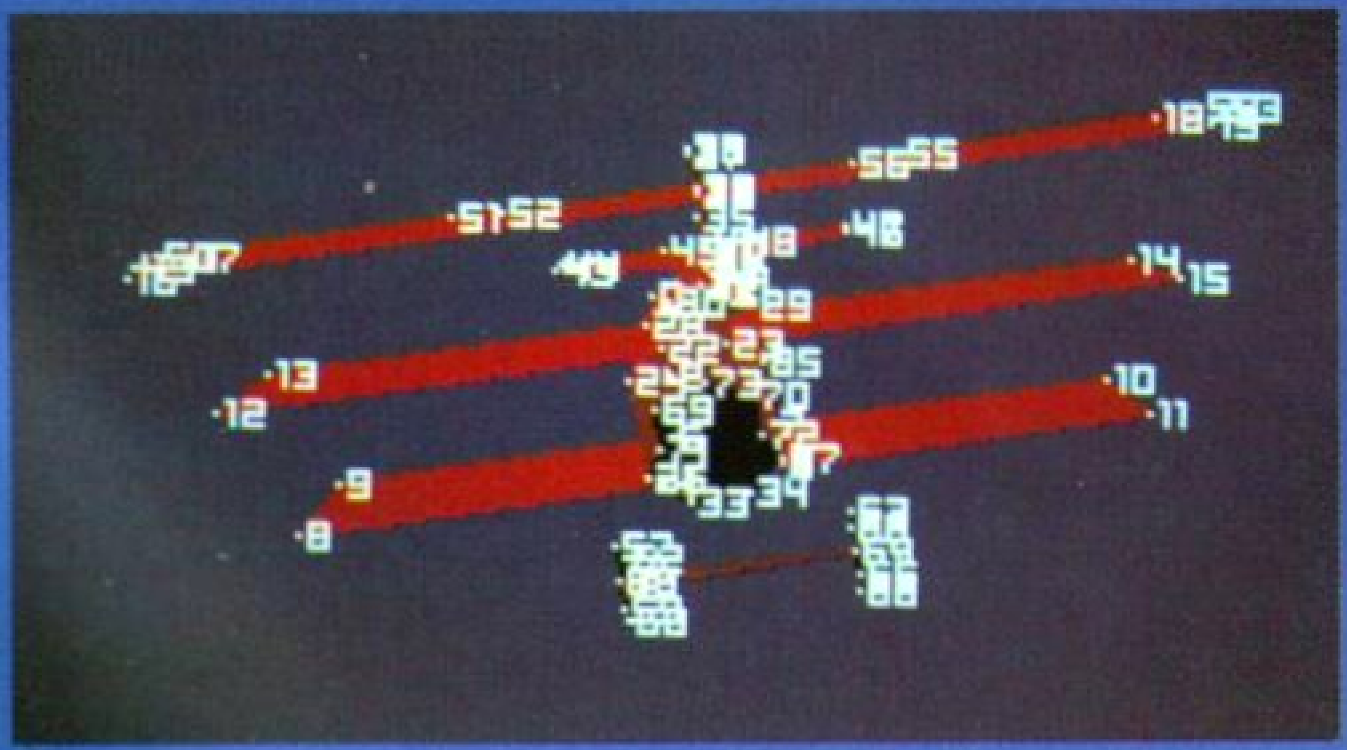
MicroProse UK do all the programming work on Amiga versions of sims like *F-19* and the new *F-15 Strike Eagle*, as well as producing original games like the forthcoming *Air Duel*, a head-to-head air combat simulator. Martin Moth is heavily involved with the design side.

What's the first thing to think of? "There's always a trade-off for speed: keeping the speed up is the biggest problem in a flight sim. Anybody could make a great F-15 if they had 80 or 90 polygons, but it slows the game down. So we have to keep the shapes simple."

"You start off with the 3D world, which you can 'fly' the viewpoint around, putting in mountains, rivers and scenery. Once you've got that, if you can use the mouse with basic command you can fly round and check it out. The 3D world's made up of polygons."

"Once you've got that, then you can start the game. The British programmers who did *F-19* went away before *F-15 Strike Eagle* because they thought they could do it faster, and *F-15 Strike Eagle* is quite noticeably faster. Also they've done *F-15* primarily for the Amiga, rather than for the ST."

After that, speed and detail then become the two opposing factors as the game develops. The less detail, the greater the speed. "At the moment, that's Glyn's problem with *Air Duel*. He's got slightly too much ground detail and it's chugging a bit. With *Air Duel*, the whole thing is playability rather than realism, so that needs the speed. When you're flying along without any enemy, there's just loads of details, it's great: you can see trains chuffing along, towns ... but as soon as the enemy





other objects and rotate it by the inverse of its matrix and that'll give you what it can see."

"It's very nice" comments Andy: "at any time during the game we can just say a different object is now the viewpoint – there's no further calculation involved. You can leave cameras and things lying around and actually see yourself." Which is what happens in *Cybercon*.

But there's more. "We've been testing the annihilator in *Cybercon* this way. Because he runs in the background the whole of the time, you never know what quite he's doing. We put his viewpoint into the little screen where you view objects and things, so you can see exactly what he sees the whole time. It's quite eerie. Where's he going now? What's he doing?"

Reference Works

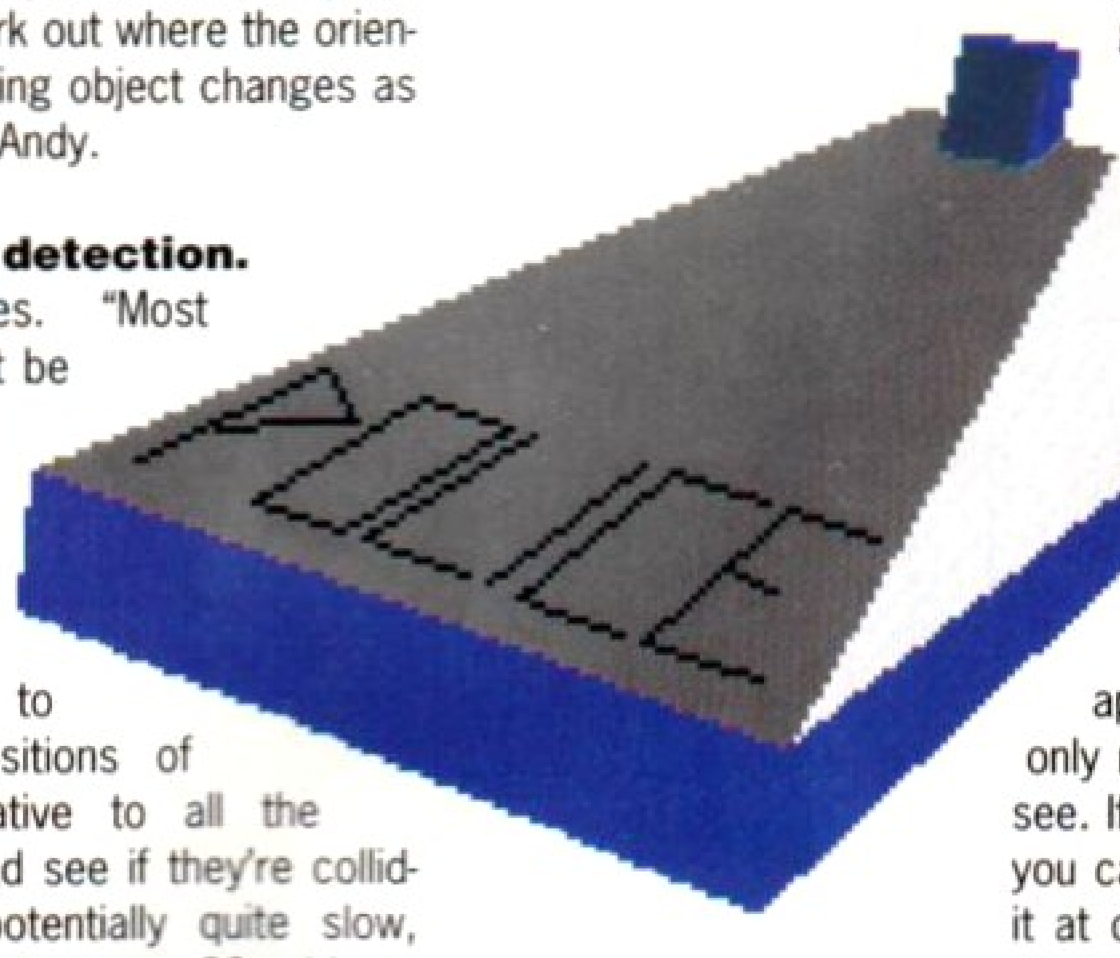
What then, is the zero reference point for all this, I ask Andy. "On the whole it's normally the player. You might define the world where everything has a position, but at some point you have to convert that to everything relative to the player.

"Then you've got to take the player's orientation into account, so when the player moves, the whole world spins around the player. So you allow for the rotation of the player by taking the centrepoint of all the object – all objects are normally defined relative to their own centrepoint – and rotating those about by the opposite of the player's rotation."

So there's several layers of reference: the points on an object are defined relative to the object's centre and the centrepoints are all defined relative to the player. "Then in a game half the objects are moving, so you have to work out where the orientation of a moving object changes as it moves" adds Andy.

Collision detection.

Andy continues. "Most games wouldn't be any use unless you could tell when things hit other things. So you've got to check the positions of everything relative to all the other things and see if they're colliding. This is potentially quite slow, because if you've got 20 objects that's 400 tests, which would be horribly slow. So you've got to find ways around that to speed it up."

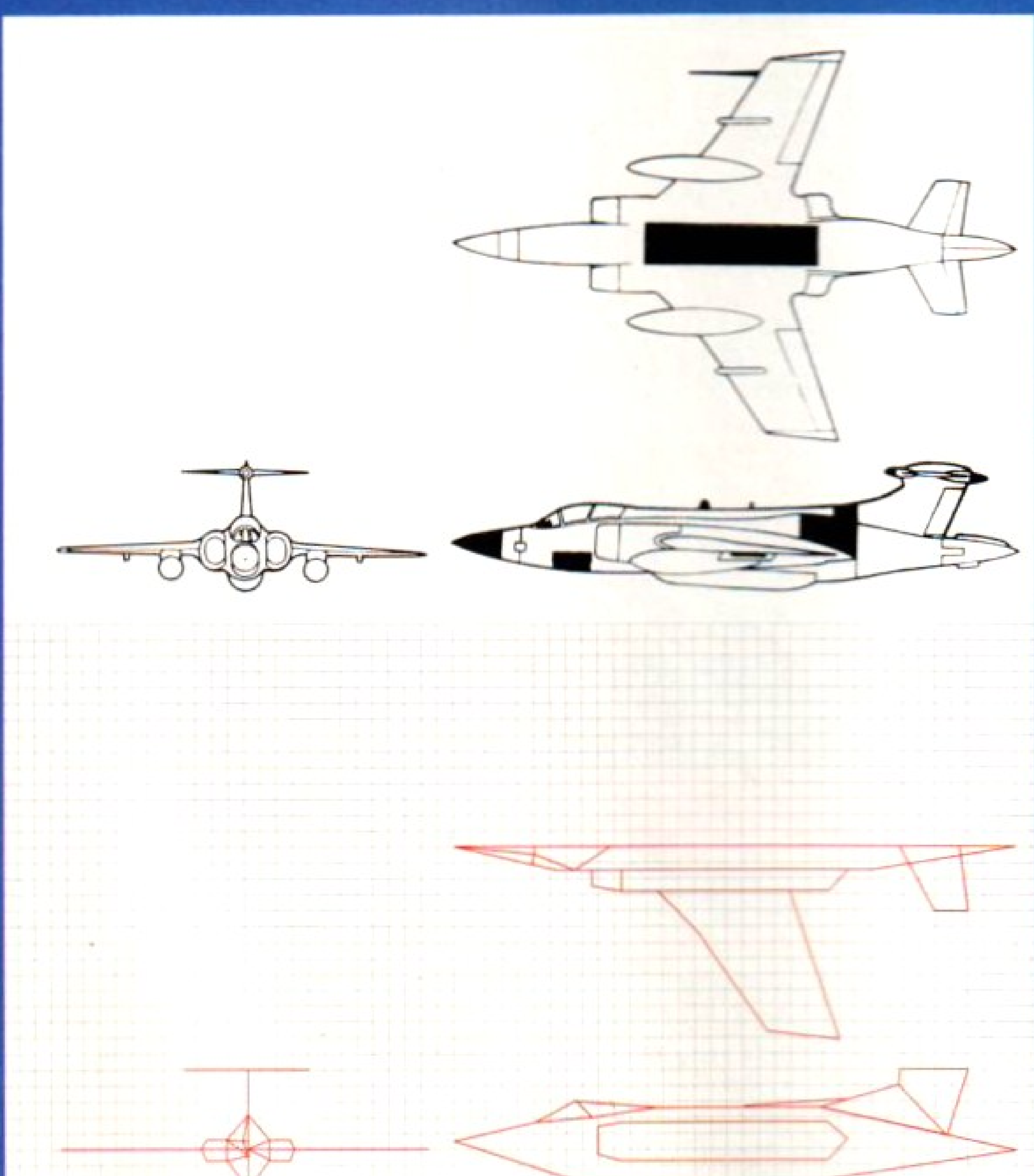


What's the target for speed? Is there a set number of frames per second you have to be able to reach? "A lot depends on the game. Something like *Cybercon* can get away with a much lower frame rate than a flight sim could: because you're walking around, you don't need the same sensation of speed. *Cybercon* has places where fast action is important, like when you're fighting things, so we try to make sure that only happens during fairly simple scenes. *Interphase* is more of a speed thing, really."

Sorting!

Another key thing to 3D programming is sorting within an object. This is a bit like the depth sorting that the Painter does, but it works on the faces of an object. Andy picks up the story. "If an object is convex, then you can just plain draw all the polygons you can see. It's all very well taking all the polygons and calculating where they appear on the screen, but you only need to draw the ones you can see. If you have a cube, for instance, you can only ever see three faces of it at one time, so you don't want to draw the other three. So you have to have some way of working out which ones you can see.

"There are several ways of doing that: the simple way is this. You define the points in your original shape going clockwise, so if you look at the front of your cube the front four points go clockwise, then after you perform your perspective calculations you have a look at the 2D points on the screen and see if they're still going clockwise. If they are, it's still visible." If you think about this, it's



comes into view, it all cuts out. But you don't notice because you're so intent on the enemy."

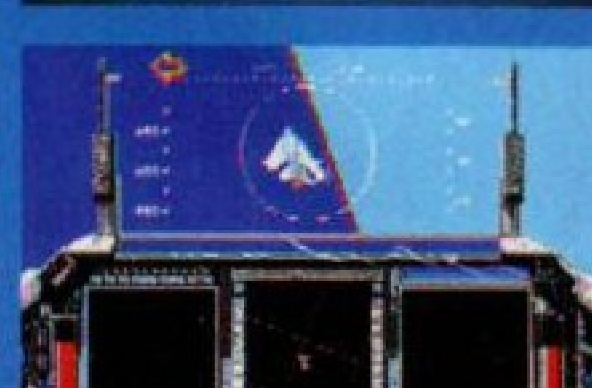
When he's doing a plane for a project, Martin starts with a sketch of an aeroplane on graph paper, which is based on a scale drawing of the real aircraft. "I love it, it's almost a game in itself" he says. "I've basically got a top-down view, side view and front-on view. With those, you sketch out where the polygons go. You have two problems: a) to keep the polygons as simple as possible and b) not to overlap polygons. If you overlap them, it can't depth sort, can't tell what's in front or behind. That's one of the main problems.

"Then you sketch that, draw it on graph paper, then you try to simplify it as much as possible while keeping the plane's distinctive shape. Then you work out all the x y and z coordinates and enter them into the computer as dots on the screen, then start to fill in all the polygons on screen between the dots. It's basically dot-to-dot."





Hopefully, after all of that, you end up with a filled polygon model of an aircraft. If there's any problems, you might be back to square one. the pictures should give you an idea of how it's done: and you'll be able to see the real thing in *F-15* and *Air Duel* soon.



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perfectly logical too: it just makes sure you're not looking at the back, the mirror image of the front.

"There are more sophisticated ways of doing this" Andy offers. Are you using any of them? "We use all of them, I think. We hardly ever use the simple 2D one."

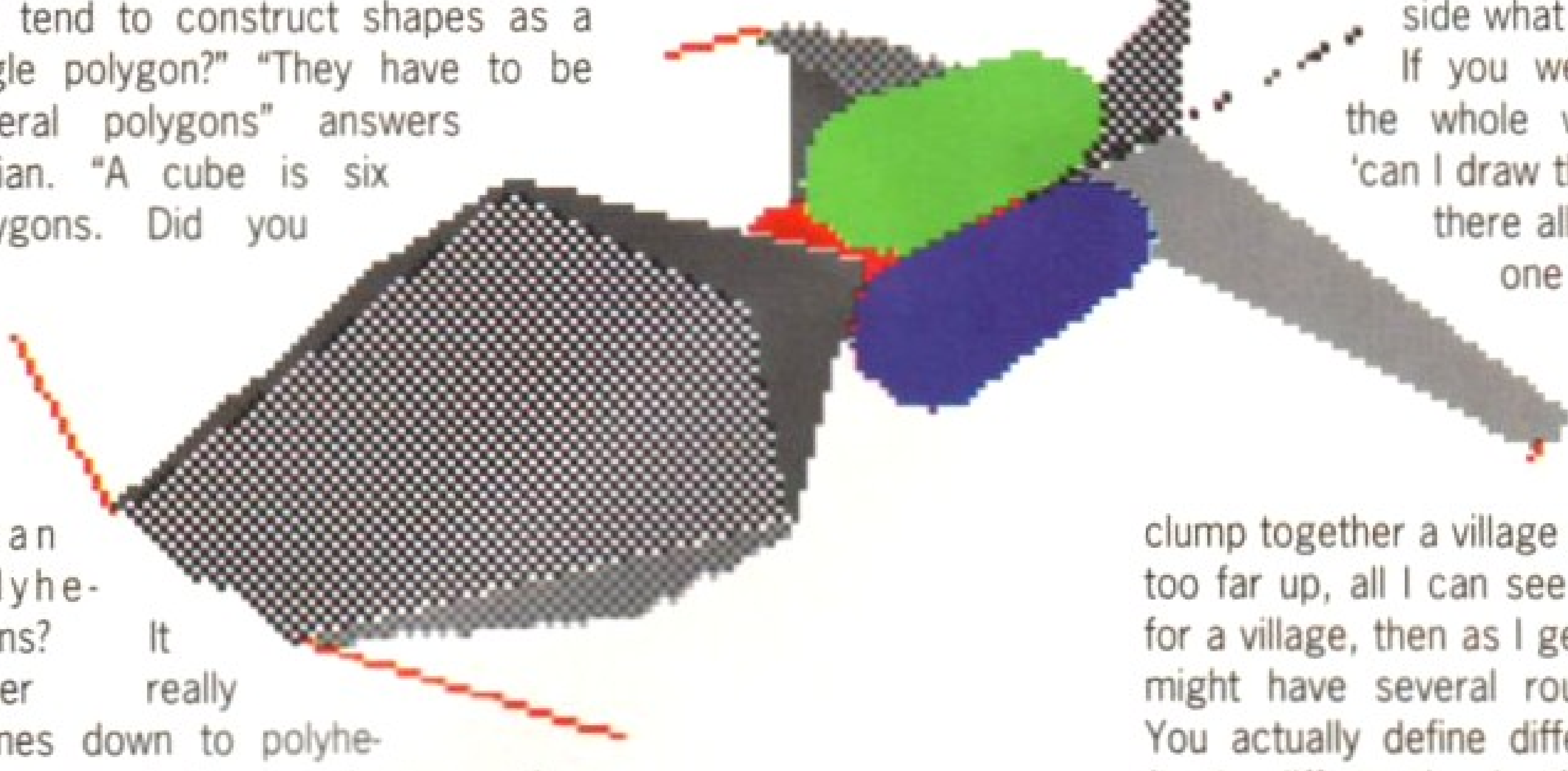
Z Clipping

"There's another level of complication" adds Adrian. "You're going to mention z clipping, aren't you?" Andy says. Obviously. Here we go...

"If you have an object where part of it's behind you and part of it's in front of you, like a spaceship that's passing you, you can still see part of it. You have to be able to work out which part of it's in front of you. The thing is, the perspective calculations just go completely haywire, so you need to work out this new 3D polygon before you work out the new 2D polygon. This technique's called z clipping and what it does is to take a plane in front of you and chop everything off there. If you do that you can't use that way of sorting we just talked about."

Andy gets back to sorting. "If an object is entirely convex, drawing the faces that are visible and not drawing the faces that aren't is enough. But if an object is concave, with bits that fold in on themselves, then trying to work out the order in which to draw the polygons for those is quite fiddly. Or it used to be quite fiddly ..." Adrian chuckles and I suspect we will be hearing about another Assembly Line clever bit, here.

I ask another stupid question. "Do you tend to construct shapes as a single polygon?" "They have to be several polygons" answers Adrian. "A cube is six polygons. Did you mean polyhedrons? It never really comes down to polyhedrons, you just use polygons and draw them in a certain order." Oops: I've made a basic mistake. But there's a lesson, there: remember that all 3D objects are dealt with as polygons, flat shapes, not as whole 3D things. Let's move on.



Movement

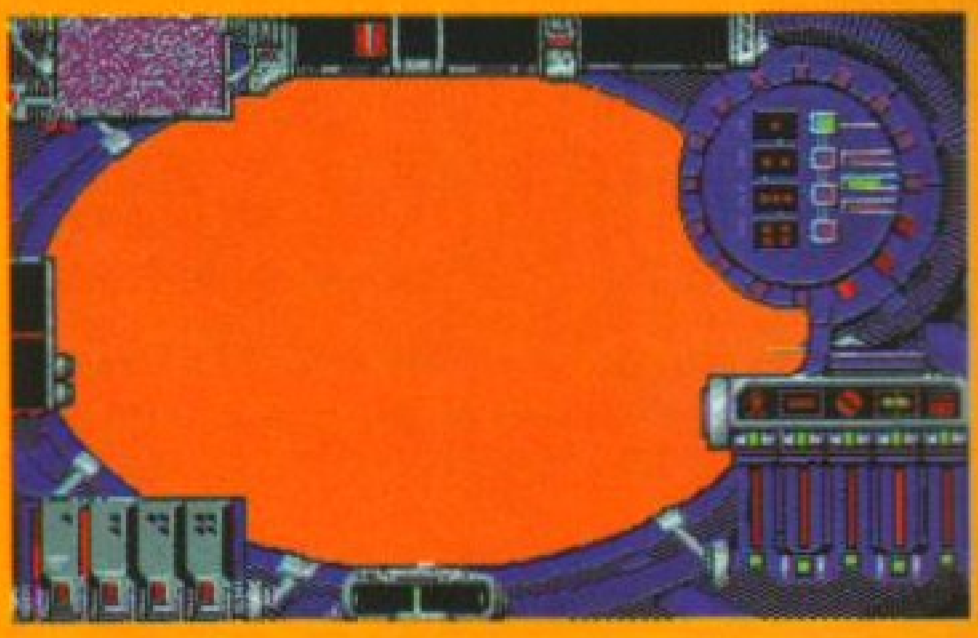
How do you move an object? "You just calculate the vector and add it on to the position" says Adrian. Remember that a vector is a simple way of describing movement in 3D coords: it might be a movement of 2 in the x axis, 5 in the y axis. It's simple enough eh?

How many polygons are there in a large game, in total? "It's a weird question" says Andy. "In many games, there's an awful lot outside what you can see. If you were scanning the whole world saying 'can I draw this?' you'd be there all day drawing one frame."

"For instance, in a flight sim, you'd clump together a village and say if I'm too far up, all I can see is one block for a village, then as I get closer, you might have several rough houses." You actually define different objects for the different levels of detail."

What about depth-cueing? "Depth cueing means making things darker as they get further away. If you want to keep the speed up, you make sure you don't draw objects until they're quite close to you. But that means that when objects first appear, they're quite big. This huge thing suddenly appears from nowhere. So it's slightly more subtle to bring it in dark, then as it gets nearer to you its colours will get clearer. You just look at how far away it is and you use that to define the colour."

Cybercon and Clever Clipping



"Drawing order is generally more of a problem in games than the rest of it" says Andy Beveridge, programmer of *Cybercon III*. " Where you've got things like, in *Cybercon*, robots coming through a doorway, you have to draw part of the wall, the robot, then the rest of the wall. Things like *Carrier Command* you had planes coming down to the deck and then going down the lift, on object going inside another, and it all has to be sorted properly. That gets quite fiddly."

"To give an example of the Painter algorithm" chips in Adrian, "If you're in a room that is looking into another room, the Painter says what you should do is you should draw the far room, then the wall with the door cut out of it, and then the contents of this room you're in. Andy manages to get round this in *Cybercon* by being able to draw just inside the door."

"What he does is calculates the shape of the door, and then effectively says 'this is now the screen' and everything clips to that instead. " "Which is much faster in that particular case" adds Andy. "If you watch *Cybercon* drawing a room in slow motion it looks very very strange because if there's a door and a window, the view through the window – and just the bit you can see through the window – appears on the screen, then the view through the door, then the wall appears around it. There's no point at which it draws all the stuff behind the wall. It makes a big difference to the speed of *Cybercon*."

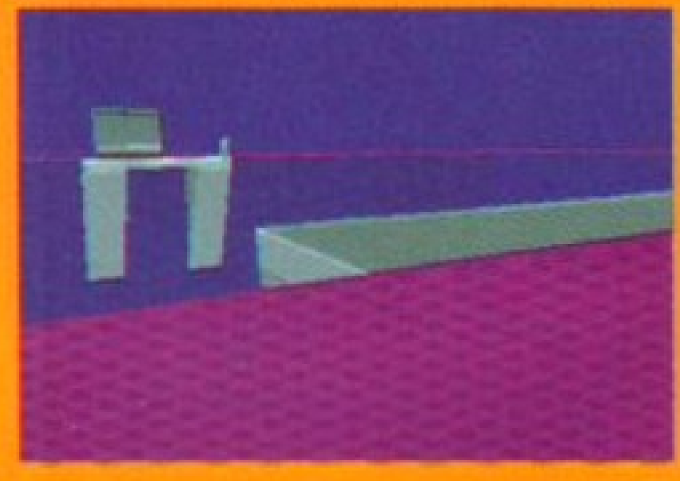
"It makes clipping polygons massively more complicated," interjects Adrian, "because we're not just talking about clipping to a nice square screen, we might be clipping to absolutely anything. That's because we're so clever!" So are they clipping even to circles? "Yeah, we have clipped to circles, there's places where we do clip to circles. We clip to anything! But it very much depends on the game, some games have weird requirements."

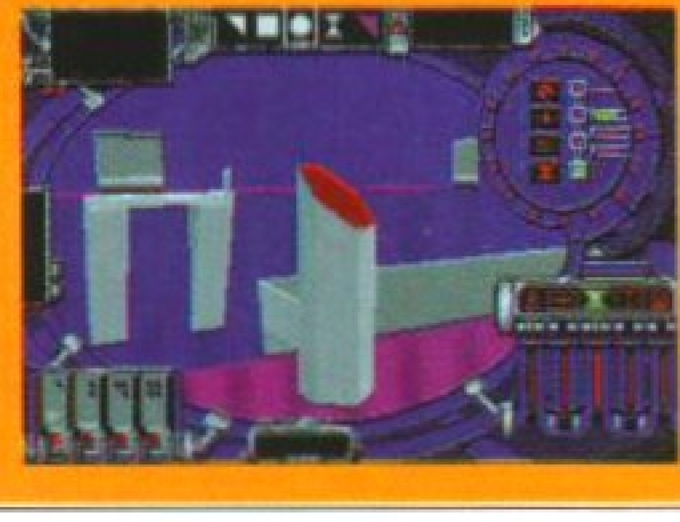
"In fact the shape of the screen in *Cybercon* to start with is not particularly nice" Adrian points out. "But the way a lot of people do it is they draw to a rectangle and then stick a lot of overlapping bits on top. We don't."

"It's something we talked about years ago, but never really had a use for. but the initial test runs of *Cybercon* were so slow, we had to find some way to speed it up.



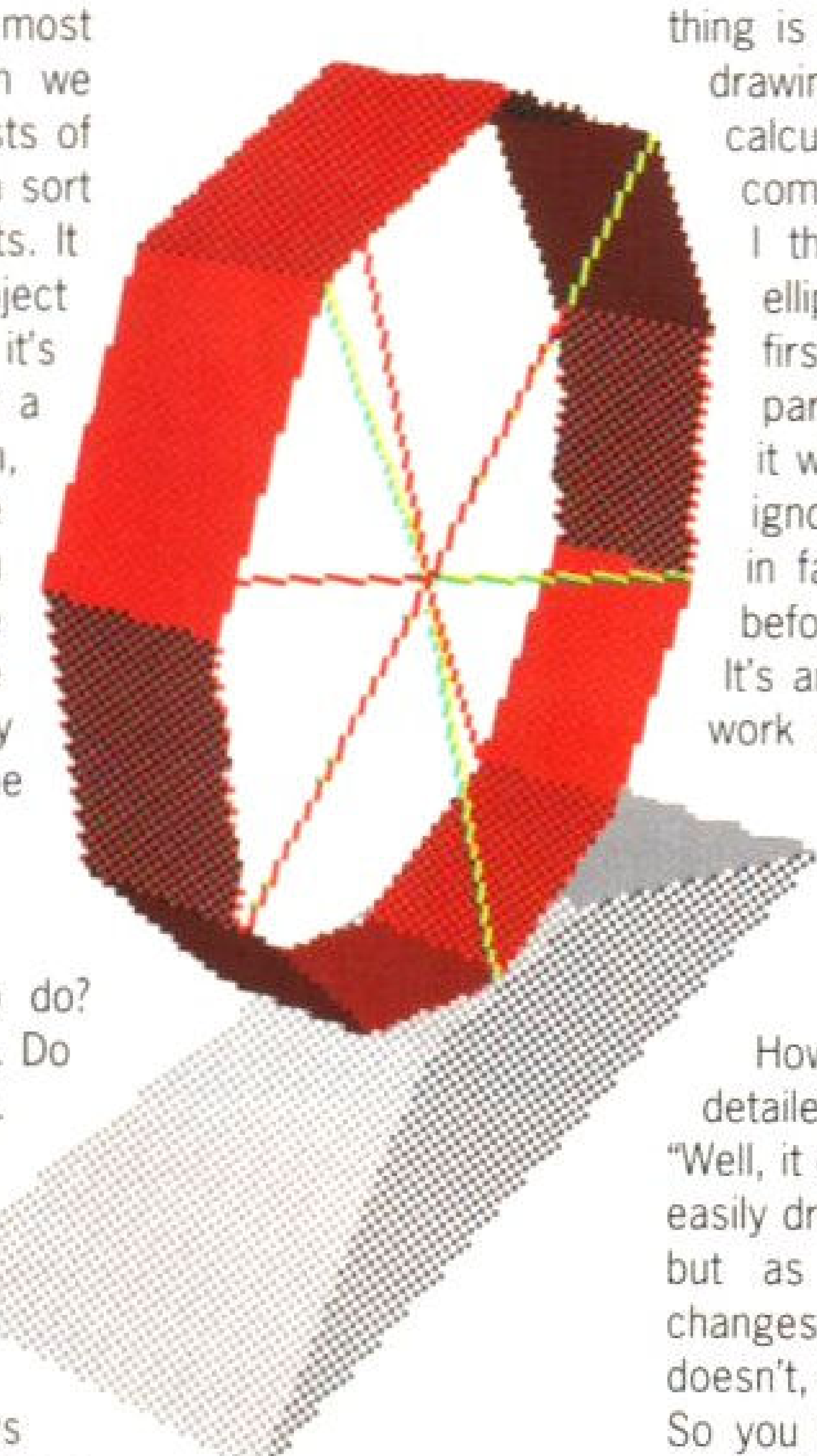






Clever objects

How is an object's colour defined? "It's stored as part of the object. One thing we have in common with most people doing 3D is that when we started our objects were just lists of points, but nowadays we have a sort of language to define the objects. It basically says 'there is an object here between these points and it's green'. It looks like a piece of a high-level language, has IFs in, and it's interpreted every time the object is drawn. Then if you want to have something like light-source shading it's quite easy, because you simply say 'set the colour according to the angle of the face.'"



Slipped disks

Why are circles so difficult to do? "They're not. It's a piece of piss. Do you mean discs?" says Adrian. "Circles we use to represent spheres, so if you've got a sphere in the game, it looks the same from any angle" contributes Andy. "There are well-documented ways of drawing, literally on the screen, a circle." So why is a disc so difficult?

"When it's at an angle," Adrian begins, "a circle will look like an ellipse, even when it's at quite an oblique angle, which is quite surprising really. Working out exactly what an ellipse is, rather than a fudged method, is very involved. The other thing is that you need some way of drawing it on screen when you've calculated it, and that's a lot more complicated than a circle drawer. I think other people are doing ellipses now, but we got there first because I thought of this particularly cunning way of doing it where you could more or less ignore what angle it was at. But in fact the calculations we used before were complete dogwank. It's an awful lot simpler if you just work out the angle of the ellipse and in effect just parallel project, which means no perspective."

The future of 3D

How easy will it be to put detailed pictures onto objects? "Well, it depends really. You can quite easily draw a surface onto a polygon, but as the angle of the shape changes the angle of the picture doesn't, and that's not what you want. So you have to be recalculating the angle of the texture. And that's quite a lot more complicated. You have to calculate every single point on the polygon. Normally we're only concerned with the vertices and maybe the ends of the scanline. But all of a sudden you'd be dealing with every pixel on the polygon."

"I don't know how much you'll be seeing of discs in future," opines Andy. "With virtual reality catching on and people getting more and more interested in 3D, they're going to start throwing hardware at the problem. So rather than you having to draw your polygon yourself, you'll have a chip with a polygon filler on it in a games console or a virtual reality machine. That'll be much much faster, but it's very unlikely they'll put ellipse-drawing hardware in. It's always a problem when they put hardware in, because the chip's big advantage is, it's completely flexible."

"But it'll mean that everyone has access to incredibly fast polygon fillers. We'll be able to do amazing things with that" says Adrian. "Nearly all the time in a game is still taken up by drawing the polygons" agrees Andy, "even though there's a lot of complex maths going on behind. That's the only thing holding back computers like the Amiga."

Well, we'll see. Texture mapping, fractal scenery, faster polygon drawing, who knows what we will see next? But if you want to take a look at Virtual Reality then see the special report on Page 10, and for the low down on *Cybercon* take a glance at the review on Page 82. ■

Freescape

For the masses

Remember the Freescape system? It's a structured way of creating games used to develop such 3D classics as *Driller, Total Eclipse* and *Castle Master*, and very soon its power will be available for you to create your own 3D games. Incentive's Ian Andrew explains...

"The first thing you need is an idea, then a sort of formula for how the game's going to work. The way we have developed our 3D games is based on Freescape, which was developed not for a single game but as an upwardly upgradeable system right from back in 1987. We spent a lot more time researching before we brought the first game out.

"After the first game, *Driller*, came the second, *Dark Side*: we added improved features and speed to it. Although the games were designed separately, the system was intended to be reusable and upgradeable. Really, it's a 3D environment creator.

"There's always been two elements – the 3D design system that can create certain types of environments, and the games – but it's always run along together, so if there's been anything in a game that we thought would work well or would be interesting to have, then we added that on. For instance in the earlier games, we didn't have the ability to activate anything, so you just had to shoot things. The ability to activate things gave it a bit more depth."





In the *3D Construction Kit*, you will be able to place and change 3D shapes in your own world, then decide what the actions of shooting or 'activating' the objects does. It's incredibly simple and versatile system. Clearly it gives a great insight for the novice into how 3D programming works, but aren't Incentive revealing all the methods behind Freescape too?



The essence of *3D Construction Kit* is the ability to play with the shapes in real time: this used to be the steps up the building!

"A lot of people have said that we're giving all our secrets away," replies Ian, "and in fact we are. But we've had such a lot of people asking us to do it. It does mean that we've got to move on to something else now, but that's fair enough. I think the time's right for it."

So what is the next step for Incentive? "We're sticking to 3D. We're doing some stuff on graphics workstations and some Virtual Reality stuff. Then the Superscape system may well happen on home computers next year, but it won't be for at least a year." So we have an advanced version of Freescape to look forward to? "It's completely rewritten and completely different. But it's all in solid 3D: we're absolutely committed to that."

The end for Freescape? Not really, because that's where you come in! "I think a lot of people with a lot of imagination have had ideas for games and they can now do it for themselves, because we've made it as easy as possible for them. I think there will be a lot of Freescape products coming out..."

Well, I think so too. Find out how next issue in the full review of the *3D Construction Kit*...


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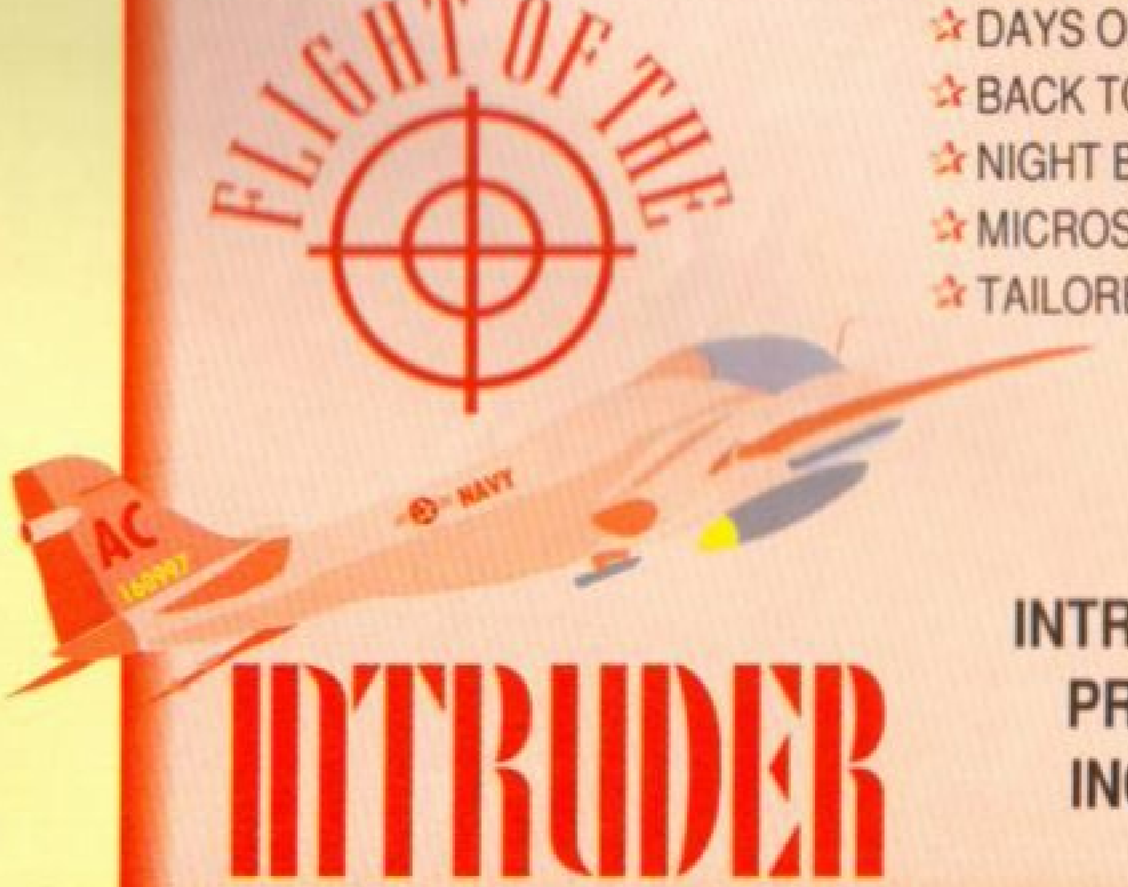
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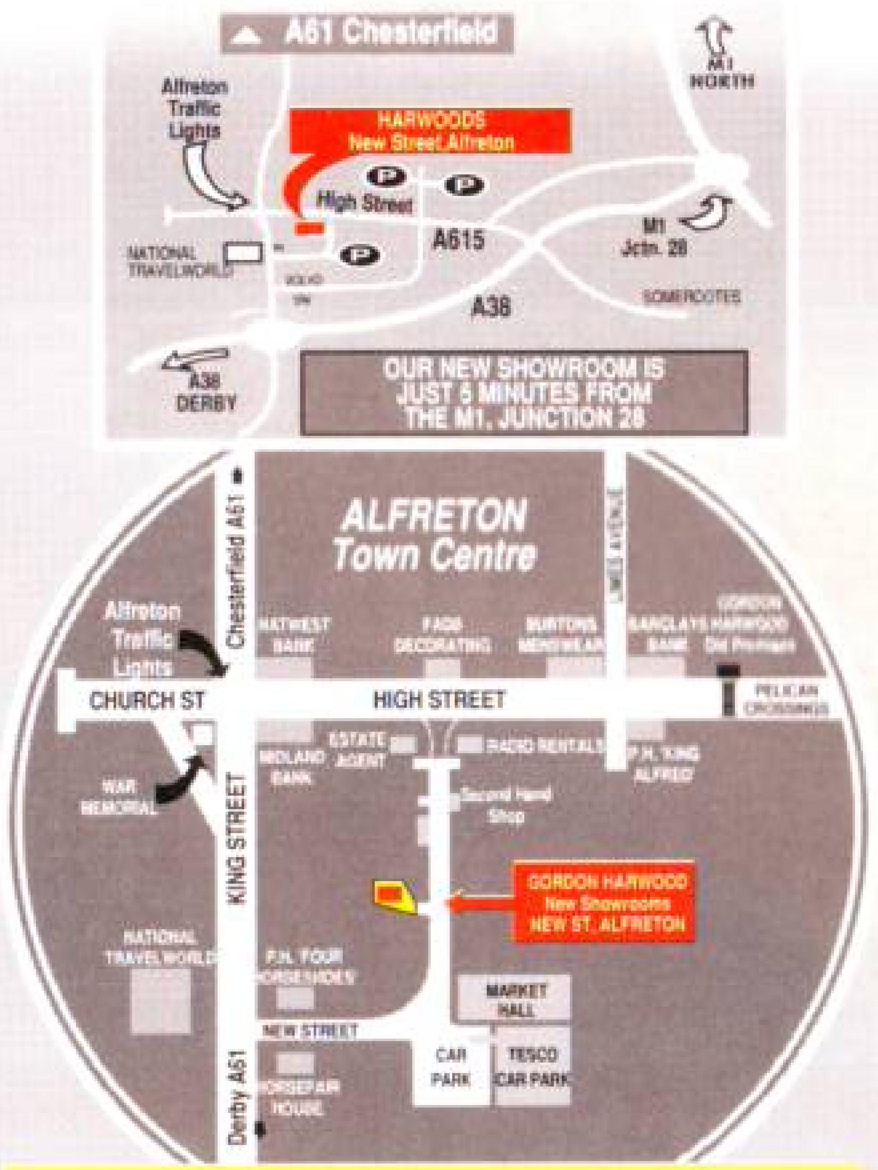
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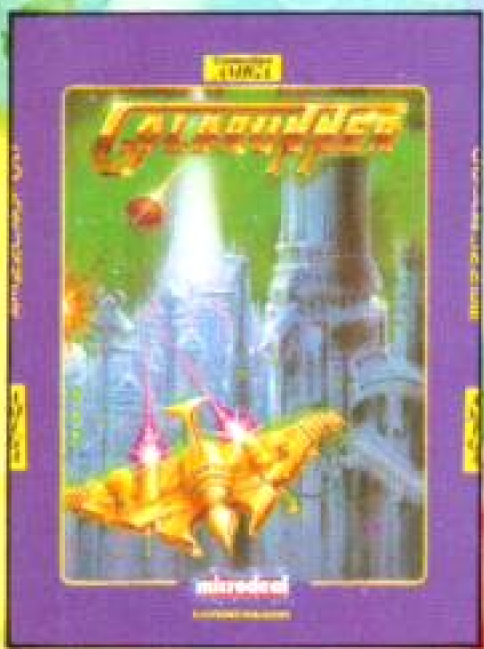
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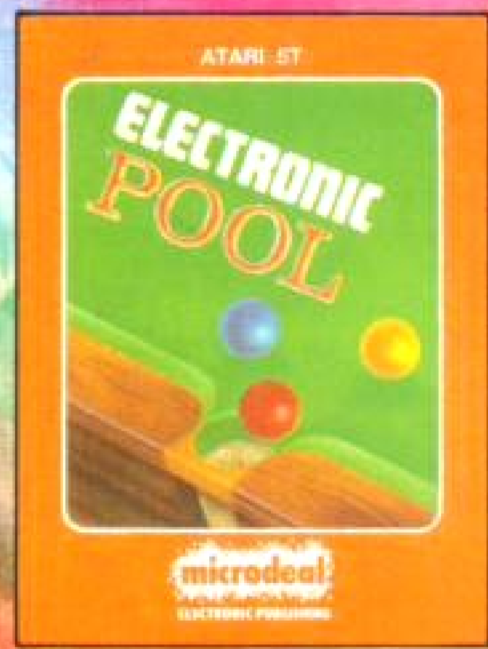
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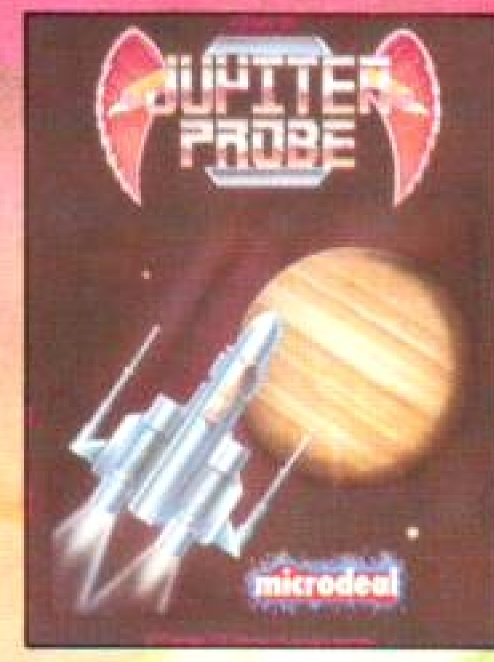
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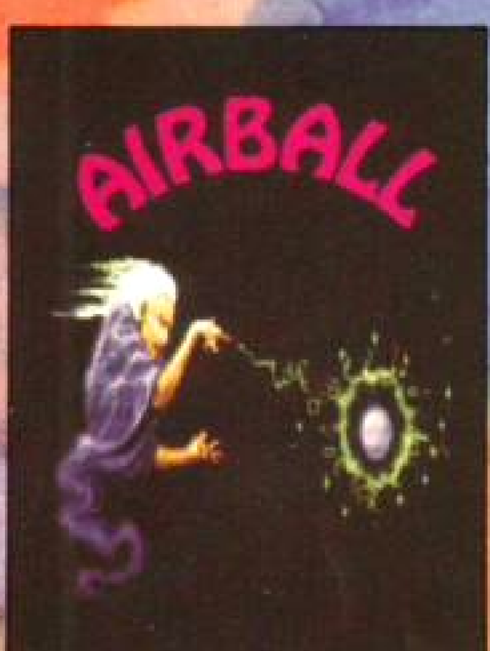
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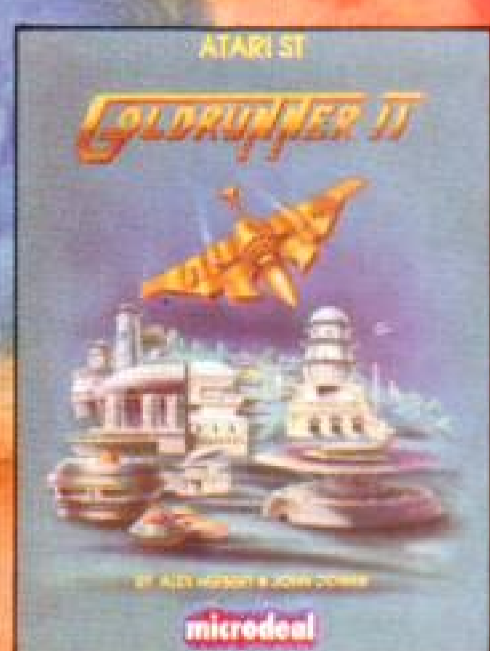
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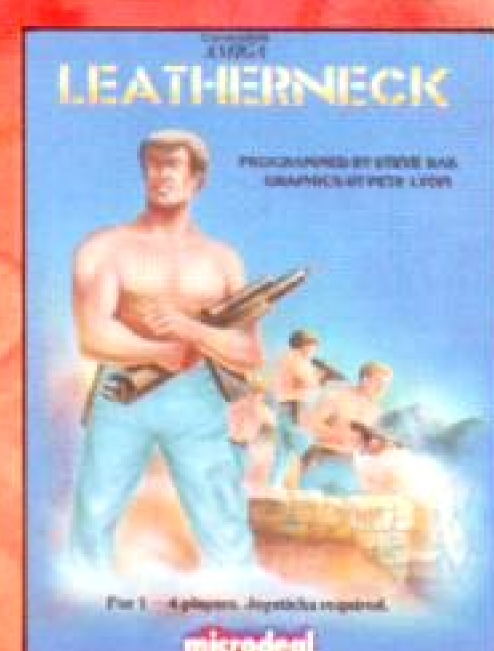
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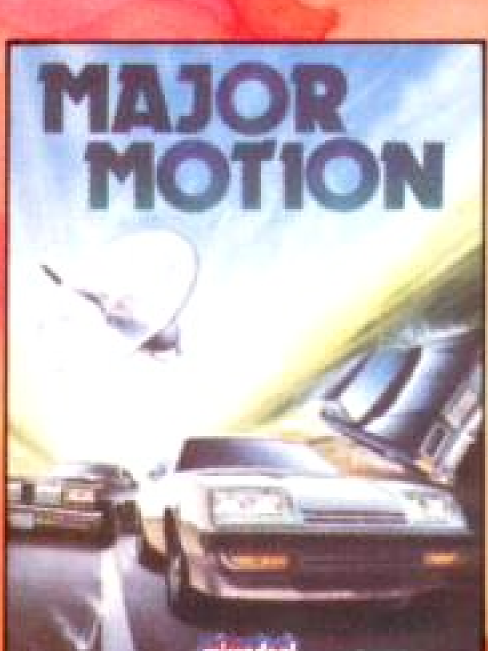
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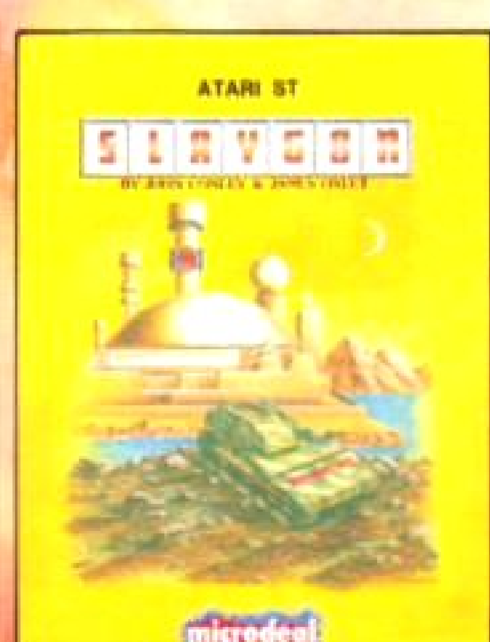
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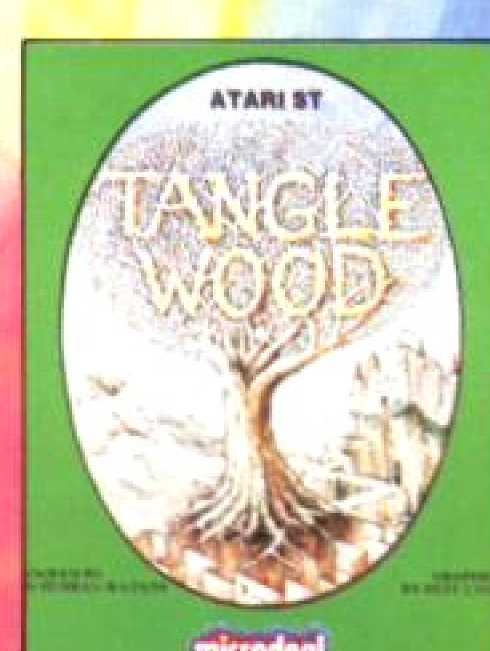
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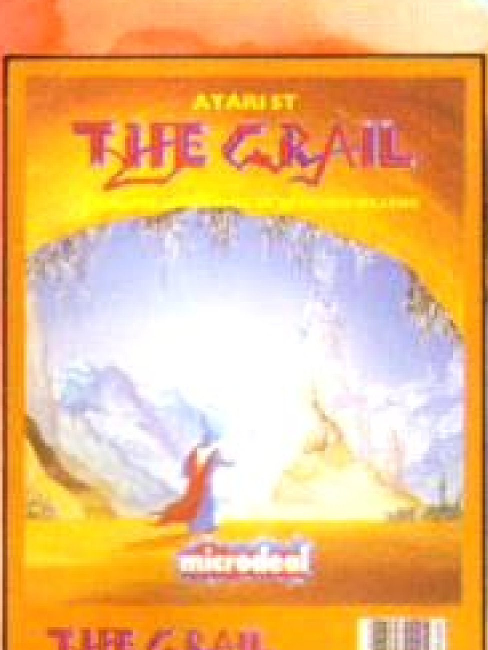
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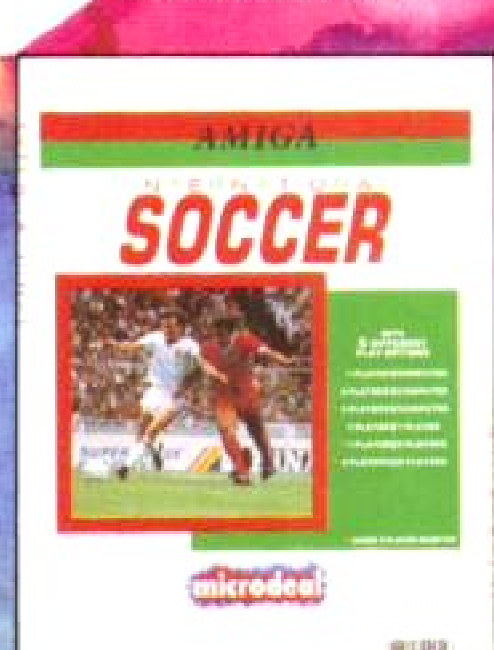
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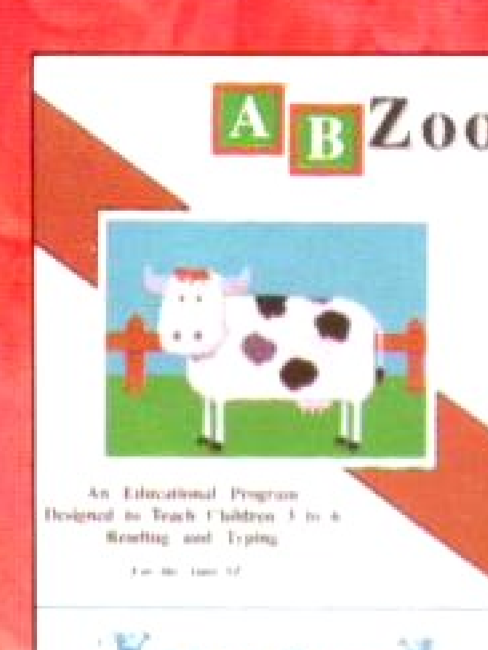
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Lazy, hazy, crazy days of summer? Not for **TRENTON WEBB**. He's been finding out how to become a 'megalomaniac' by building 'sim cities' with the aid of a CDTV, stay out of the midday sun by checking this month's ...

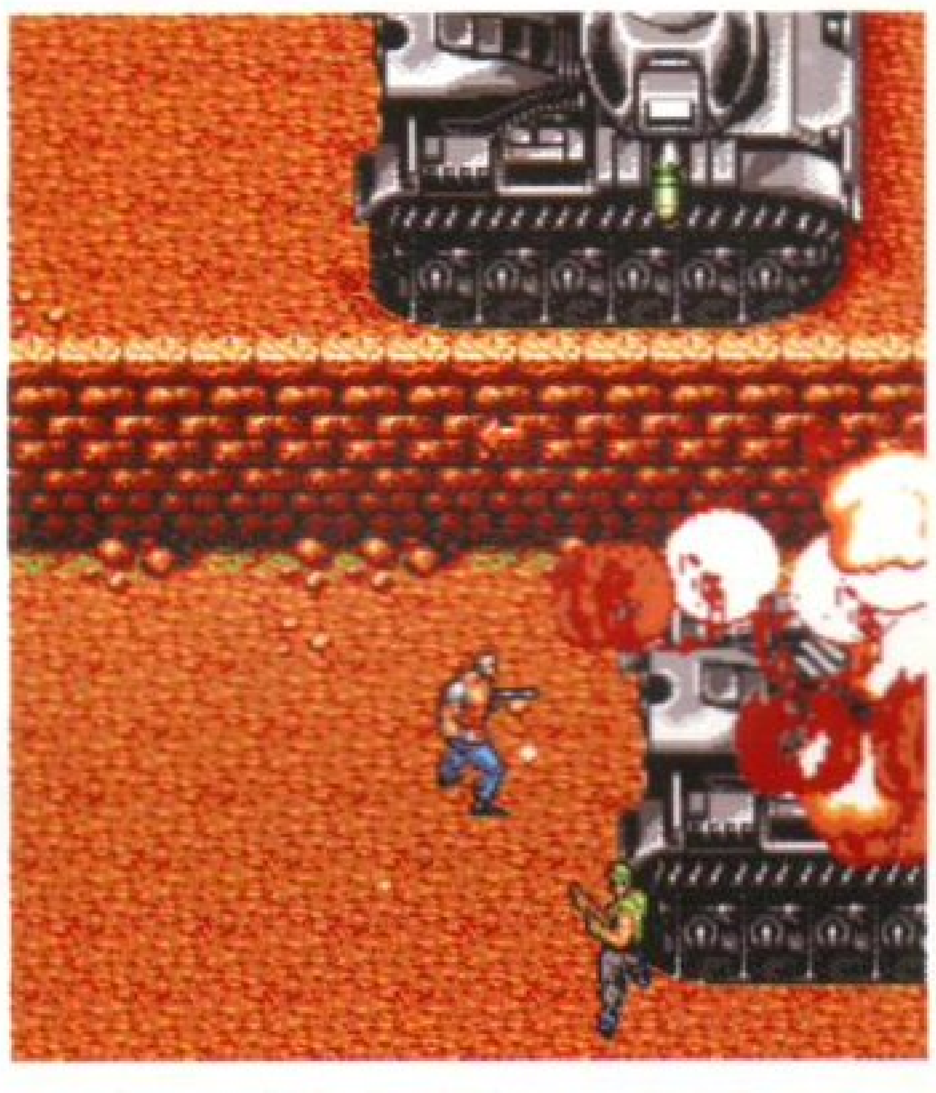
COMING ATTRACTIONS

MERCS

Publisher = US GOLD
Release = to be announced

Mercs was one of Capcom's 1990 coin-op hits. Tiertex, US Gold's faithful Capcom converters, have been labouring away getting the beast ready for an Amiga blood-bath this summer. As a solo soldier of fortune or as part of a two-player death squad, the aim is to rescue the US President who has been kidnapped. It's up to the elite mercenaries (Mercs) to bop down to Zutula and bust him out.

Eight levels of mayhem are promised, which will have the boys busting through an enemy tank cordon, neutralising the feared Scorpion squad and blowing away a base chock full of enemies, and it will all be against the clock. This style of game trades on the chaos-factor and is at its most fun when you don't have time to think about what's going down! The effects have to be spot on, the levels well thought out, but most importantly the enemies and explosions need to be huge. *Mercs* has players demolishing everything from tanks to houses, so there should be some pretty meaty bangs en route. *Commando/Ikari Warriors* clones have been plentiful over the years, but few have had that something special that allows them to stand out from blasting crowd. *Mercs*, judging from the demo disks, looks as though it's going to have a real good shot at it.





AMIGA ENCOUNTER

Publisher = Novagen Release = May

Novagen, the folks who bought us *Damocles*, have re-mastered another classic from yesteryear: *Encounter*. The original caused a bit of a stir way back in 1984 as it brought true arcade thrills to the home computer. It was fast, frantic, destructive stuff, but the graphics on the early C64 couldn't match the gameplay.

Now Paul Woakes, author of the original, has used the Amiga's graphics power to bring the game back, this time with pics that are of arcade-quality. It will be interesting to see if the seven year wait has affected its pulling power.



SHORT STUFF



Wrath of the Demon on the CDTV soon.

Empire have been busy recently and have a whole whoop of new titles to boast about. First comes *Volfied*, an almost painfully colourful Taito coin-op. Luckily your task is to paint part of the screen grey, which may just about save your retinas. In your way will stand(!) giant crabs, killer ladybirds, violent insects, jumping spiders and an eyeball spewing head!

Next up are a couple of the classiest and weirdest Cyber role-playing games yet designed. Empire have managed to get the rights to *MegaTraveller* and *Cyberspace*. *MegaTraveller* tells the tale of the Zhodani Conspiracy and features all the best that the massively popular RPG has to offer: characters can choose from over 70 talents, 30 weapons and 72 different skills.

The game itself takes place over 28 different planets based in eight different systems. This space adventure should be ready for review around about next month, when we will put the space aces through their paces.

***Cyberspace* is a computer conversion of the ICE role-play system – they are the peeps who put the board-game versions of *Lord of the Rings, Chronicles of Narnia* and *Sherlock Holmes* together. This will be a Cyperpunk epic complete with muscle grafted Netheads and**

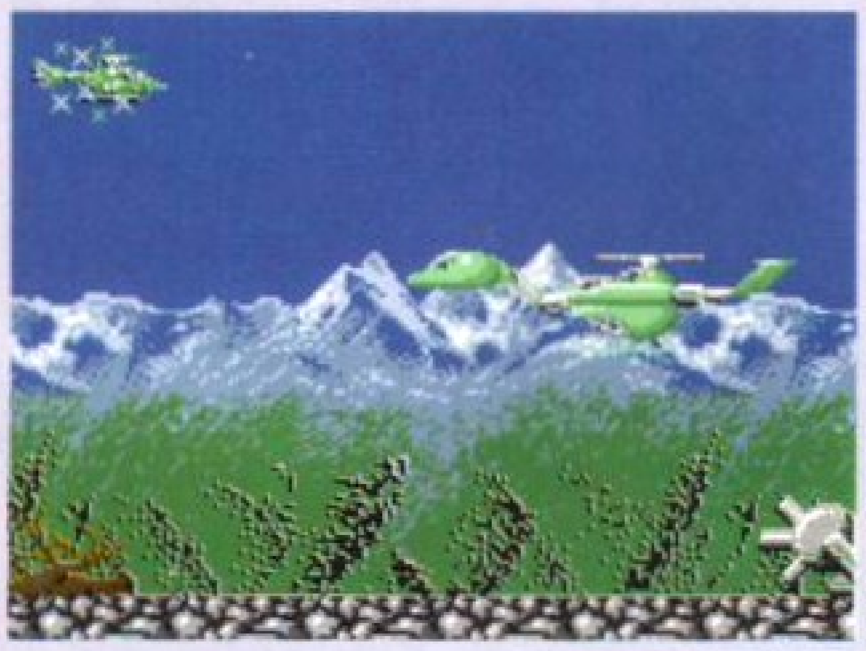
Continued overleaf ▸



The Konami coin-op to hit the Amiga soon.

cybernetic mercenaries. You will even be able to play around in the wonderful world of cyberspace itself, a strange semi-computer generated alternative kind of dimension.

If this wasn't enough Empire have also been busy getting *Wrath of the Demon* (AF19 85%) ready for the CDTV. The disk-based version was, as they say, a corker. So with the extra flexibility, sound and speed allowed with CD storage it could be outrageous. The game is virtually finished now, but the release is being held back until the machine has



Silkworm's inventors go road racing.

been officially launched – as it helps having a CDTV to play it on!

Turtles was the biggest of the big games last year sales-wise and Image Works are looking to follow this up with a conversion of the Konami coin-op which starred the Half-Shell heroes. In the arcades this baby was a four-player beat-em-up with huge turtle sprites doing the business in a highly-graphic fashion. Expect *Turtles II* to hit the streets around Christmas, by which time we will have been bombarded with a second wave of Turtle madness, thanks to the second movie in the series.

Jaleco have a good reputation when it comes to arcade machines – they did after all invent *Silkworm* – so interest is high on their latest licence which has been won by Image Works. *Cisco Heat* is the story of a road race through an accurately mapped San Francisco and includes the hills made famous during the car chases in *Bullit*.

The arcade version of *Cisco Heat* features a near-perfect representation of car handling thanks to some nifty shock-absorber routines. With hills like those in SF, they're going to take a bashing when the game gets into gear later on this year.

CAPTAIN PLANET

Publisher = Mindscape

Release = To be announced



Captain Planet is one of the world's all-round good guys and he has decided to take a stand against environmental terrorism. This isn't at all surprising as the chap himself looks a little off colour (ie blue!) and knowing superheroes this was probably caused by some strange scientific accident. The game will feature a 'green' theme with the good Captain fighting pollution. No information about how the game will play has yet been released.

This release will swell the ranks of environmentally-aware games that are currently being coded, as software gets a conscience. You could be witnessing the birth of a new genre.

DRAGON FIGHTER

Publisher = Idea

Release = May

The Dragon Fighters have flown all the way from Italy for this spring release. Every 10 years the dragon-riding knights get together and race to see who will be king for the next decade – now there's a fair electoral system! The challenge will take riders through a maze of underworld locations, but speed alone will not be enough.

Loads of powerful weapons are lying about and a crafty dragon driver can collect and use them to blast the inhabitants of the caves – who aren't keen on boy racers or dragons. It will be a 100-level match, with 100 different caverns, 25 villages and over 50 species of monster to mash. The introduction of route choices frees players from the linear constraints of shoot-em-ups/race games. The Dragon Riders should be at a software emporium near you soon.



COUGAR FORCE

Publisher = Tomahawk Release = to be announced

Why is it all the world's best secret agents manage to get themselves kidnapped? The question is raised by *Cougar Force*, an action arcade spectacular where a gentleman called Super A is sent on a secret mission to save the world. He's captured almost immediately and the game kicks off as he escapes. The following mayhem involves fist fights, 3D piloting as well as a host of driving simulations.



Multi-style games have been tried in the past and many simply just don't cut it, but when they work – as they did in *Midwinter* for example – they are something special. Let's hope *Cougar Force* gets the mix about right because these can offer a depth of gameplay that single-style programs can't possibly hope to match.

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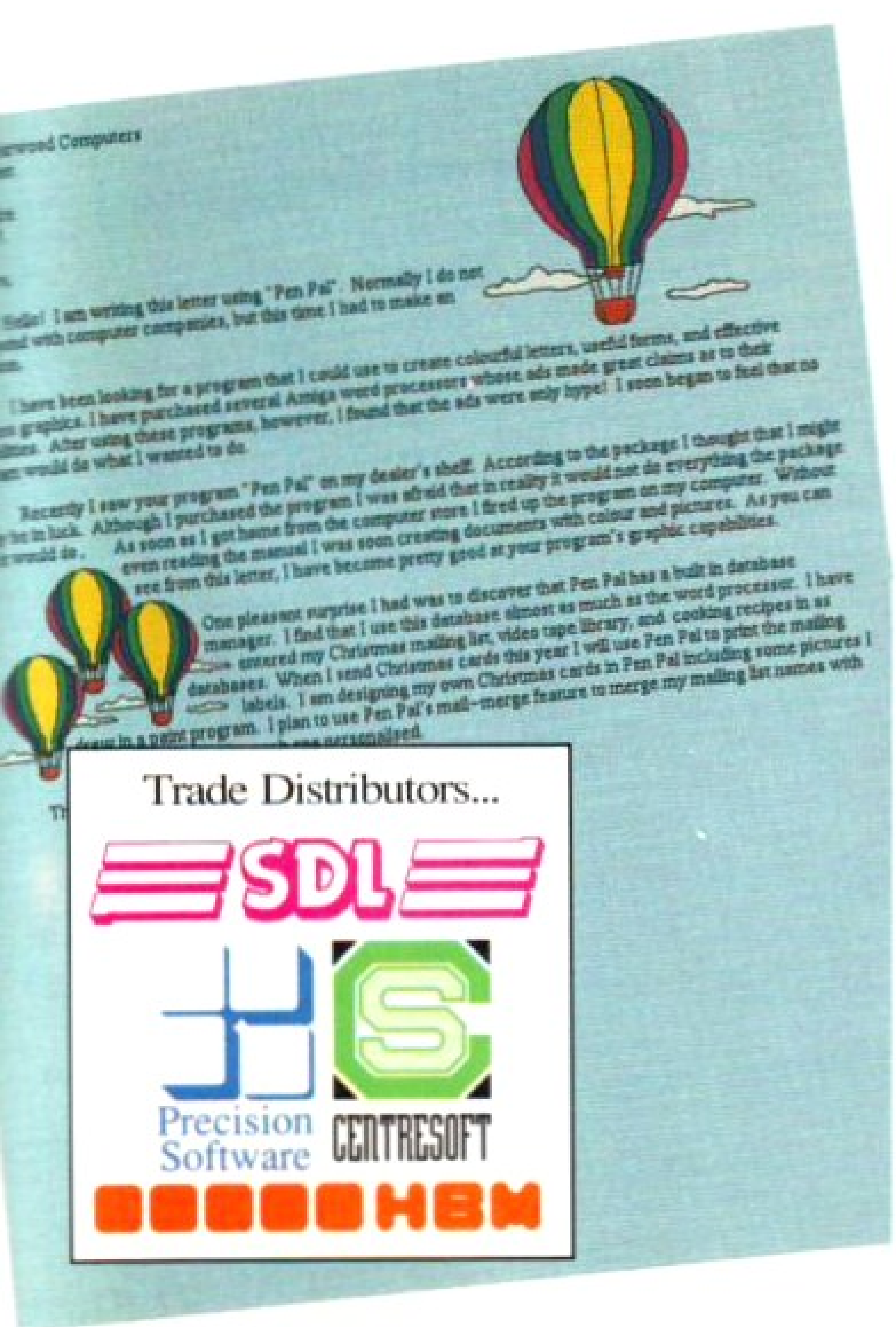
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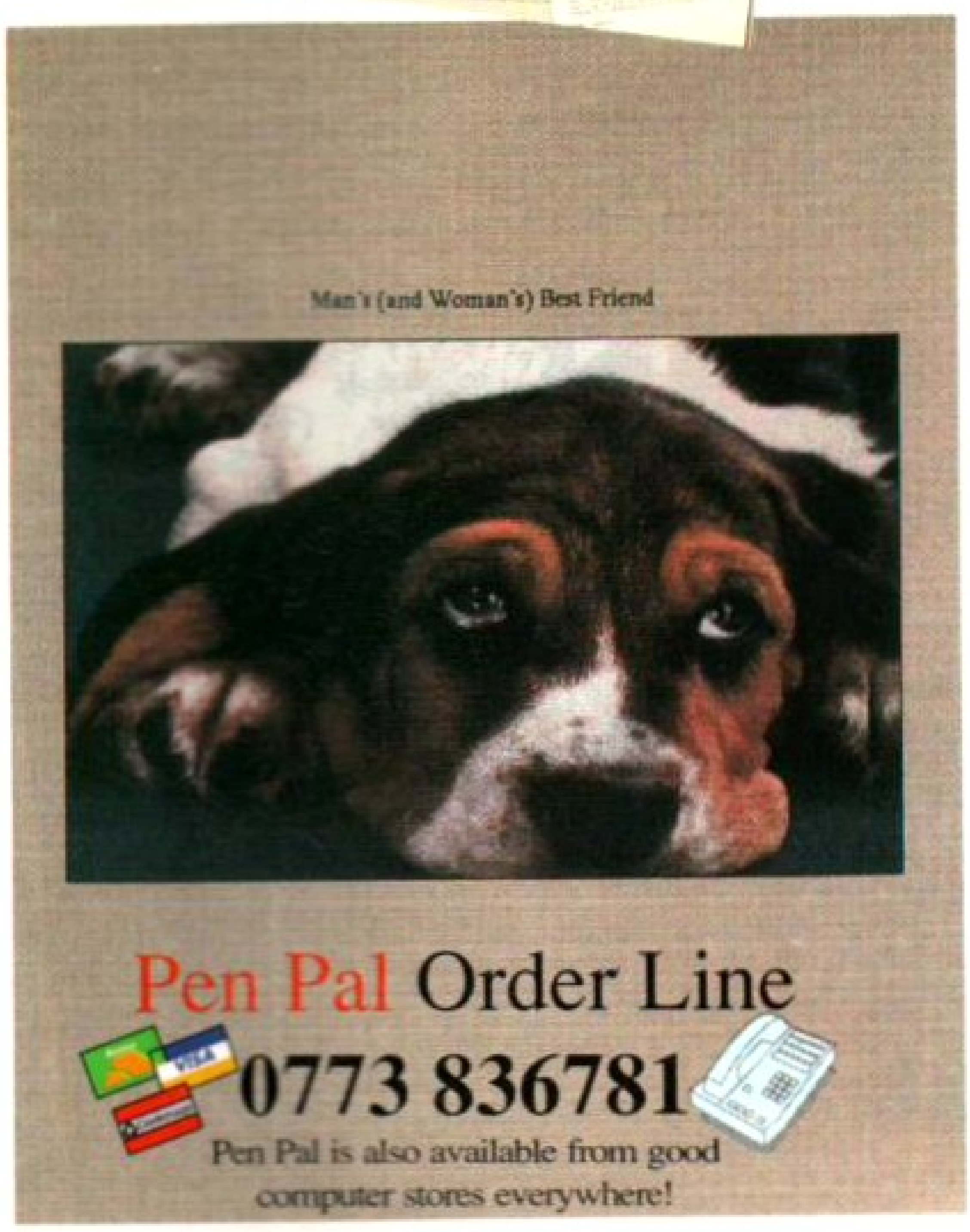
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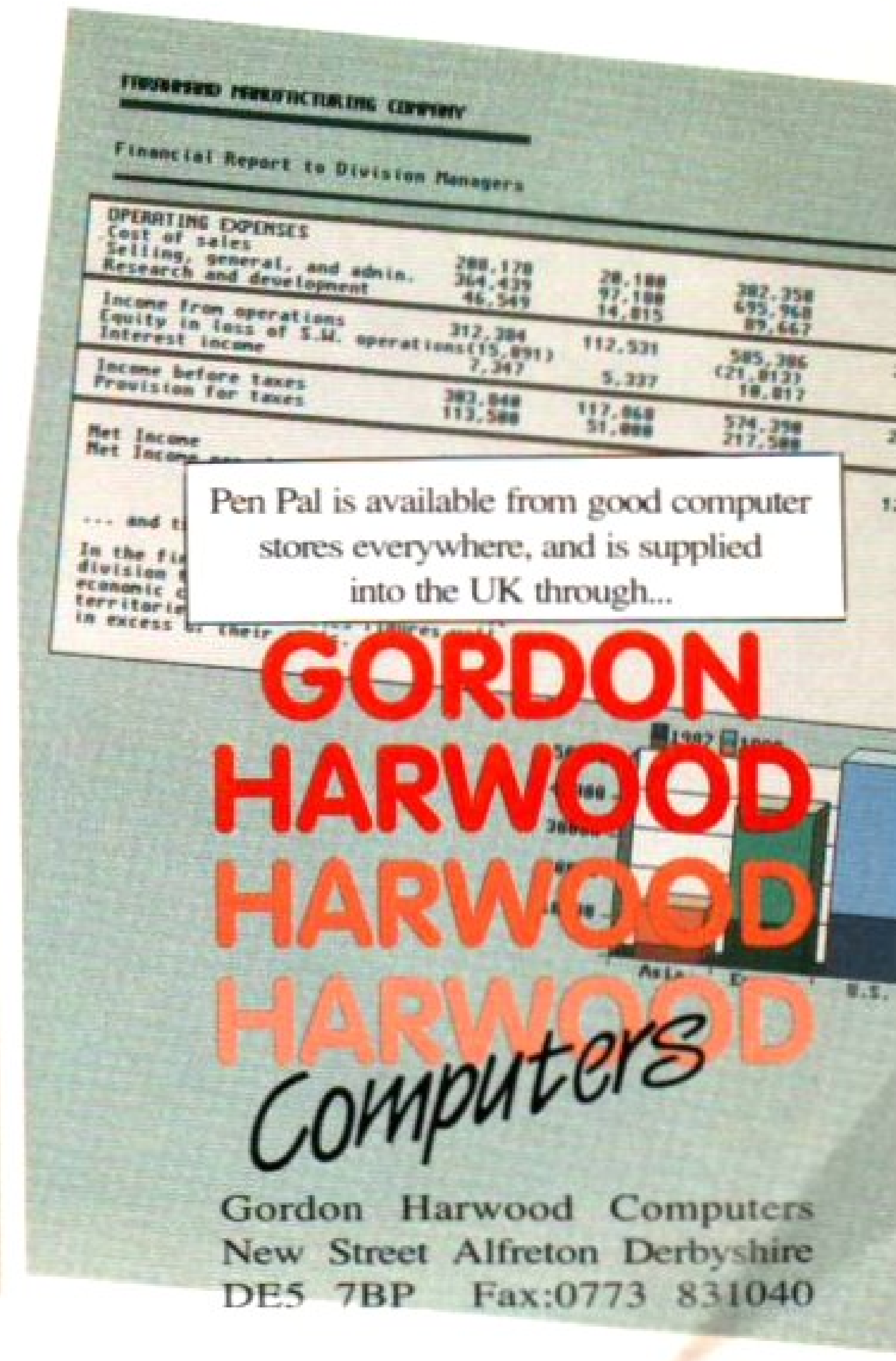
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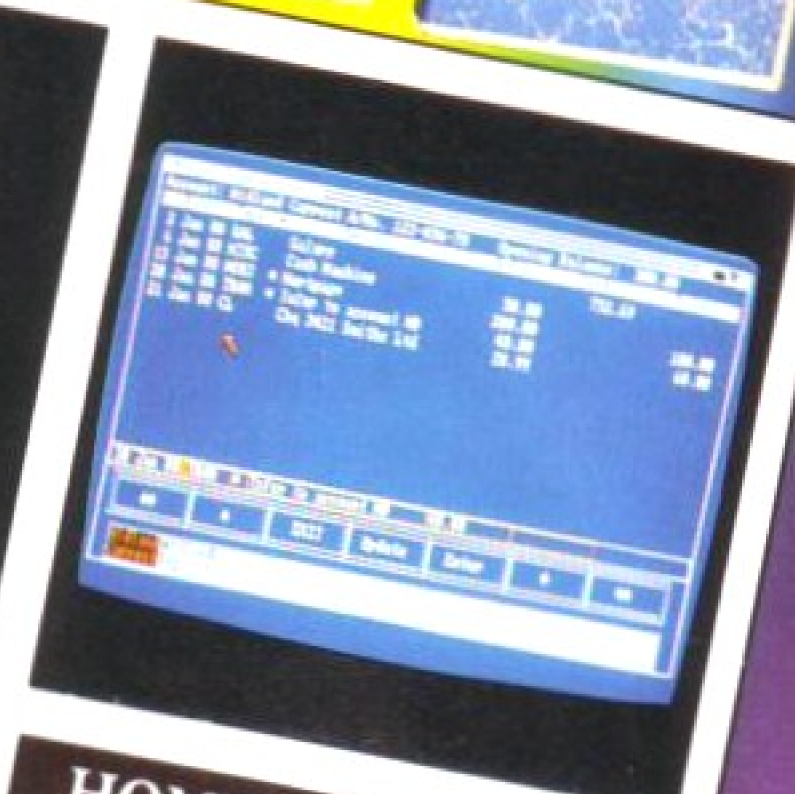
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MEG-LO-MANIA

Publisher – Image Works Release – Summer







This icon controls all of *Meg-Lo-mania*. Each sub-icon represents an action or item which can be used to bash other teams. For example the bulb is 'invent', sword is 'fight' etc.

All power corrupts, but absolute power's a laugh. In *Meg-Lo-Mania* you will be given a chance to gain such power, in glorious techno-colour-land full of cute sprites and wild sounds. What makes this 'God' power game different? Well it speaks for itself, honest!

Meg-Lo-Mania is a battle for the control of 27 islands. Four warlords are going at it; with 100 men they must conquer sequential island groups. These groups of three form sub-groups known as Epochs. The nine Epochs roughly mirror history, starting as cavemen they go through Old Testament epochs, Roman, Norman, Middle Ages, Victorian, World Wars, 1980s and culminate in a future zone, circa 2001.

Sticks and stones

When all three 'islands' of an Epoch are captured, you progress to the next sequential time zone and a fresh battle with the other the lords. At the off your boys are cavemen and can only use their hands to fight, they must research the war potential of rocks and sticks. Weapons are necessary, as control of any island depends on the destruction of the enemies towers (bases).

After some serious inventing you start to leap tech' levels, giving you the potential to build a wider range of new death-dealing devices. This sets up a tension and like the cold warriors, you become obsessed with imbalances in weaponry – here it's not so much missile gaps but stick gaps. Building stuff requires raw materials and time. Each invention requires three key elements or close substitutes. So as well as getting the necessary skills to build them you will have to dominate the areas where raw materials can be found. Compromises can be made – this is war – but the closer the elements are to the right ingredients the more potent the weapon.

The territorial side of *Meg-Lo-Mania* has strong board-game elements. The tech' levels and lack of materials bring in the best features of games like *Millennium 2.2* and put them all on an arcade footing. *Meg-Lo-Mania* offers this plus enemies who play a strong strategic role in a deeply loathsome way.

There are four 'lords' on offer for you to play ranging from psychotic to cowards. Whoever you choose, the other three adjust their game to provide a total nutter, pragmatist and wimp. You can choose to lock horns with these guys or if one looks pretty pokey, ally with them. It's not just their quality of play that threatens to make them special, but their voices.

Carry on killing

Each Leader has their own distinct voice. These were sampled, using radio actors to heap on the characterisation. Alliances offered by the yellow king are pure Kenneth Williams: "Can I be on your team?". After an inventing spree your own minions echo the Python's with "Zee Invention eez fin-ished". This very human touch requires no extra memory as it lives on the second disk, while the game code is loaded in one lump from the first. This leaves DF0: free to be accessed as speech is required.

Meg-Lo-Mania, in its present stage lacks animation but the game code is finished. From these early shots the floating lands may remind you of Populous, but, the only real similarity is the fact that you control a number of folks not a single character. *Meg-Lo-Mania* will be part strategy war-game, part management sim and part test of mouse speed. It starts out slow, as the tech levels only allow conventional battles, but as these increase the pace hots up. Better weapons allow swift victory and development speed takes a front seat. Nukes are next on the shopping list so brinkmanship and alliances take on new importance. All of these factors are underpinned with a need to save men. At the games end waits the mother of battles for which surplus soldiers must be stowed away.

Personal enemies and ridiculous technological imbalance should make Meg-Lo-Mania really special. Flying jets against bi-planes (not all the players advance as quickly through Tech' levels) sounds real fun. But, when the bombs on the other foot, just pray that other guys get killed first. Sensible Software still have a couple of months to run on the project and only need to slot the animation into the game, which leaves them ample time to get the gameplay perfect. *Meg-Lo-Mania* is an evolutionary game that changes character, stressing different techniques, which should help grow into a real long-term test.

TECHNICALLY SPEAKING
Sound – Richard Joseph
Coding – Chris Chapman
Design – Chris Yates and Jon Hare
Graphics – Jon Hare
Previous projects – *Wizball* and *MicroProse Soccer*.

SIM CITY – CDTV

INFOGRAMES



A TALE OF TWO CITIES

Sim City broke new ground as a game, it was the first environment simulator. Acting as mayor of a real town or your own custom built conurbation you allotted cash and resources to guide the city towards a brighter future. Later came the Terrain Editor and Architecture supplement disks, which allowed further, stranger cities to develop. You chose how the city would run, doing jobs as diverse as balancing the budget to bulldozing slums.

To say _Sim City_ was a hit is an understatement, and a generic style was born. If you want to get hold of a copy, the double pack of Sim City and Populous hits the streets soon. Maxis, the original designers, have begun development of an even grander project _Sim Earth_, which will be released by Ocean later this year.

Sim City is the game Infogrames have selected as their first CDTV product. As an accredited classic it seems only natural it should be the first game on the format. Infogrames are committed to new technology, especially CD based, and have gone for a total rewrite which can exploit the CDTV's strong points. Any new machine needs software, and more importantly it needs good software, if it is to succeed. So *Sim City* not only illustrates Infogrames' faith in CD technology, but also has to show what CDTV games can do.

CDTV stunned and intrigued the world last year when Commodore announced the project. An Amiga with a CD drive, it features no keyboard and is played via a remote-control keypad. It doubles as a games machine and CD music system. There are hopes and fears for the system, confusion over what it can and cannot do, there were even scurrilous rumours that it may never make it into production. So when Infogrames began touting a CDTV game, *Format* just had to take a closer look.

Launch time

Starting in January the Infogrames programmers have been soldiering away to get the game ready for the official CDTV launch, though the game's launch has yet to be announced. Infogrames development system used a CDTV slaved to a PC system, for the sake of speed. Principally, the project was coded in C (as speed is irrelevant in *Sim City*) with the sub-routines written in assembler.

Already accomplished Amiga writers, Infogrames found the CDTV a challenge because of the different hardware specifics. The CDTV and Amiga share a common history, but there are obvious differences. Controlling a CD drive is different in both principal and practice to a floppy disk. The CD drive, while five times faster at ripping code from the disk, is comparatively slow at moving about it. So the information has to be ordered so that associated or sequential data is stored in close physical proximity, if the maximum benefit is to be made of the drive's potential. With a CD able to store over 550MB however, at least space was not a problem they encountered.

Another area to have to contend with is the CDTV's control system: an infra-red remote-control handset. Just as a mouse needs a driver so to does the keypad, and Infogrames decided to write their own for *Sim City*. The save-game facility needed rethinking too, because the CDTV saves to a RAM card, and not the game disk. Researching and developing these routines add time to development now, but are necessary investments that will save time in the future.

Zoom in

Sim City was never hot on effects. The game was strong, but it was lacking on the sound side and didn't look that hot. To this end Infogrames have used the re-coding time well, redrawing the 'sprites' and working on a themed tune for each of the eight preformed cities. This means that when the 'zoom' mode is used to blow up a particular section of the screen, the pictures don't fragment into a mass of pixels. This ties the whole game tightly together and more tightly to the CDTV, as the differences between it and the Amiga version are now more glaringly and blaringly obvious.

On the playing side the major change is the inclusion of both 'Architecture disks' and Terrain Editor to create the 'complete *Sim City* package'. On the Amiga these were sold as supplementary disks. So as well as faster loading, better sound and vision there's also a much greater selection of cities to control, command and corrupt. This allows you to play through from Medieval times through to futuristic Rio or a city of your own command.

Play away

Playing *Sim City* on the CDTV is initially odd. Once you get over the remote seating hurdle, you realise it is a relaxing way to play the game. The key pad is easy to use and can be made to mimic either a joystick or mouse. The directional pad on the left-hand side and the two 'fire' buttons by the right thumb. As a short cut, the various types of building you may want to use are all preset on the handset. So rather than cycling through all the options on a menu screen, you can now slap it straight on the map.

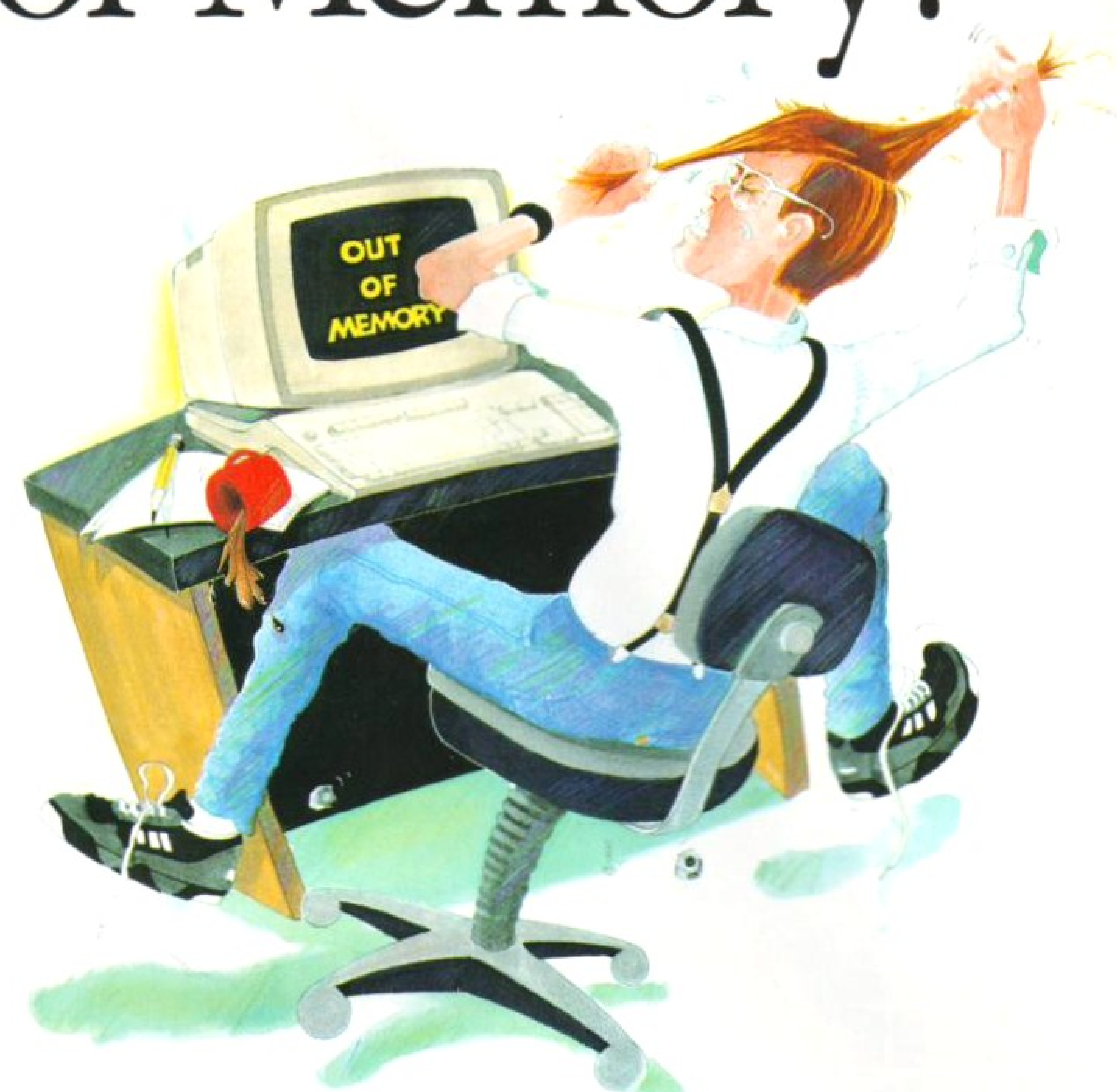
Sim City looks like an ideal CDTV game. It combines strategy, good effects and fast gaming; all tied together with the humourous side of town planning and mayoral power. It is still satisfying to build a city, balance the budget, improve the town, then saving it to RAM card before loosing Godzilla or a giant tumble-weed on the place.



TECHNICALLY SPEAKING

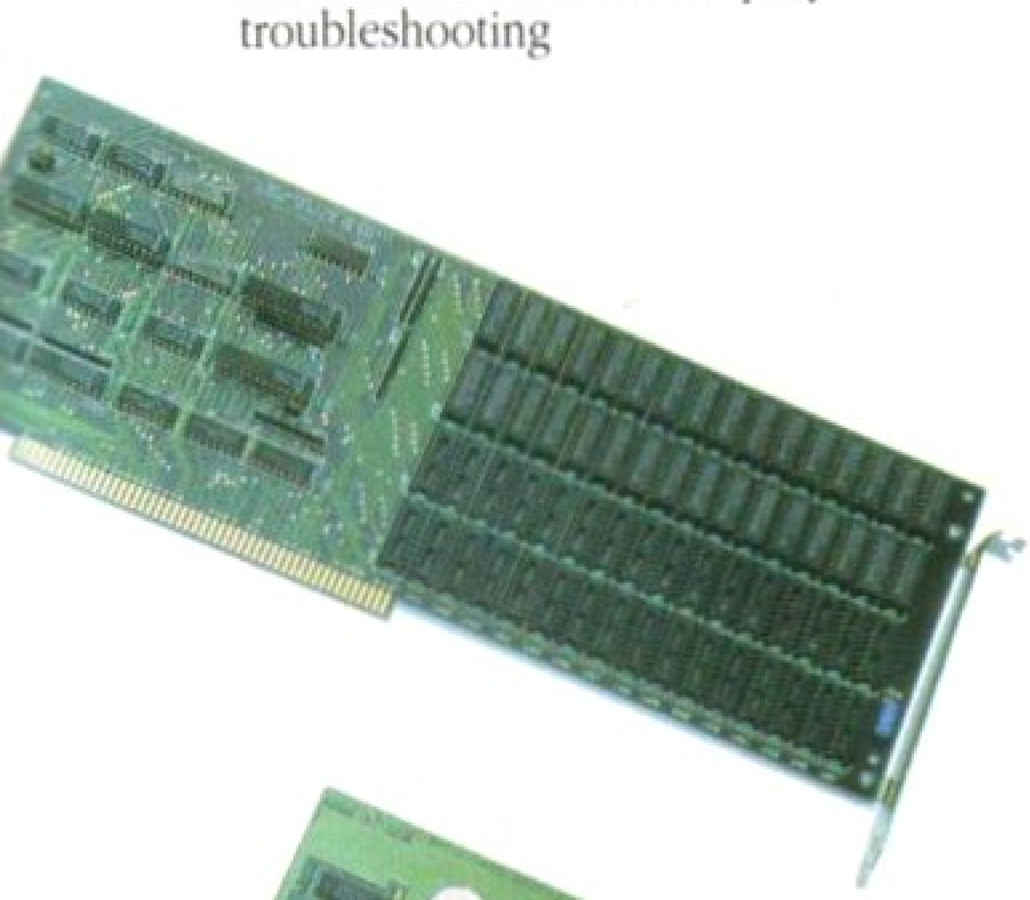
Programming – Stephane Baudet, Frederick Raynal.
Music – Frederick Mentzen.
Sound effects – Dominique Girout, Didier Chanfray.
Original design – Philippe Vachay.

Out of Memory?



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Screen shots from Atari ST version
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Screen shots are only intended to be illustrative of the game play and not the screen graphics which vary considerably between different formats in quality and appearance and are subject to the computers specifications.
It is the 1920's. Inspector Raoul Dusentier has been invited on a dream cruise in the Mediterranean, aboard the superb 3-masted ship belonging to Greek shipping magnate Niklos Karaboudjan. But no sooner has the cruise begun when Raoul is summoned to investigate a scandalous crime – the murder of his host Niklos! It's now up to Raoul to throw some light on this sinister mystery – there's a murderer on the loose and he could be prowling amongst the unsuspecting guests even now ....
Features easy-to-use Cinématique™ point-and-click operating system, now further refined to offer considerably more depth of gameplay.
A wider range of actions is now possible, including the option to question other characters in true Agatha Christie style.
PC version features 256 colours, Ad Lib and Roland sonic support
Character size has been doubled for all versions of the game.
Amiga version features 32 colours.
DELPHINE SOFTWARE
U.S. GOLD
Cinématique
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U.S. Gold Ltd, Units 2/3 Holford Way, Holford, Birmingham B6 7AX. Tel: 021 625 3366.

IN THE BEGINNING THERE WAS THE WORD, THEN CAME...

SCREEN PLAY



HIT OR MYTH?

Renegade's Gods: the stuff of legend or a graven image? Read the scriptures on P.54

With Amiga games becoming ever more diverse and complex, the *Amiga Format* reviews system is designed to be flexible enough to accommodate all styles and genres. We give one overall score, which reflects how good each game really is. This score is accompanied by a short list of the game's good and bad points, highlighting those elements that make it stand out from the crowd and those parts which really annoy. These points are then fully expanded and explained in the main review.

Format will, whenever possible, only review completely finished software. This means we see the version that ends up on the shop shelves, the version you buy. Waiting for finished games does occassionally mean that reviews of some Amiga products appear in other magazines before *Format*. Our review, though, will be an authoratitive statement of what a game is like, not speculation as to what it may be like.

The reviews team is headed by Trenton Webb and Maff Evans. Trenton had a long history in the world of 8-bit games reviewing on *Amstrad Action* before moving up into the big league for *AF* 14. Maff Evans joined the team on *AF* 7, after a heroic tour of duty with *ZZap 64*. They are backed up by a highly-experienced team of specialist reviewers from Future Publishing's crop of market-leading computer titles.



Above – Herc' kicks butt on Level Two. One of the most common beasts here are the plant pot snakes. As you approach they pop up and spit venom. Worse still, if you kill them masses of small snakes are set loose.



Right – Hercules has been tempted into a bonus treasure room, which is full of treasure but also dead hard nasties. This room is accessed via a teleport gem, so you have to beat the snake in the top right-hand corner to get the jewel which will whisk our Herc' back to safety.

GODS

AMIGA GOLD FORMAT



RENEGADE ■ £24.99 Joystick

Olympian practical jokes aren't funny, full stop. Juno's idea of a good laugh was to send you mad, while Eurystheus was fond of sending folk on unfinishable tasks. Hercules, the world's strongest man, is just one such victim of these Grecian Jeremy Beadles. To earn freedom from them both and achieve his rightful god status he must complete four challenges in four different zones of a magical city.



Hercules must fight through a temple, the streets, a labyrinth and eventually the underworld if he is to emerge as immortal. A myriad of mythological monsters stand in his way, but, more importantly, so do a horde of traps and tasks. The monsters may be killed or avoided, as may the traps, but all the tasks must be fulfilled if he is to achieve eternal life. It's in the contract you see; small print.

Just win!

Hercules is an individual and is not forced to follow any particular route to the end of any level, or zone; getting there is good enough. Under your control, all he has to do is win through using any magic, weapons or tricks that happen to come to mind. Unfortunately, the beasts who inhabit the worlds are also free to follow their own initiative. This is a combination that makes *Gods* a platform challenge, the like of which even the Zeus have never seen.

The boy can move as per normal, leaping, ducking and climbing between levels. For protection he hurls out showers of daggers and axes ahead of him, which kill (eventually) any foes foolish enough to cross his path. His initial single 'shot' can be souped-up, adding a two, or even three, way spray of flying blades, by collecting magic tokens. Extra shuriken and power bolts can be added to further beef-up the armoury. The spread is even controllable with the use of tokens, as the needs of the weaponry varies with each level.



In solution

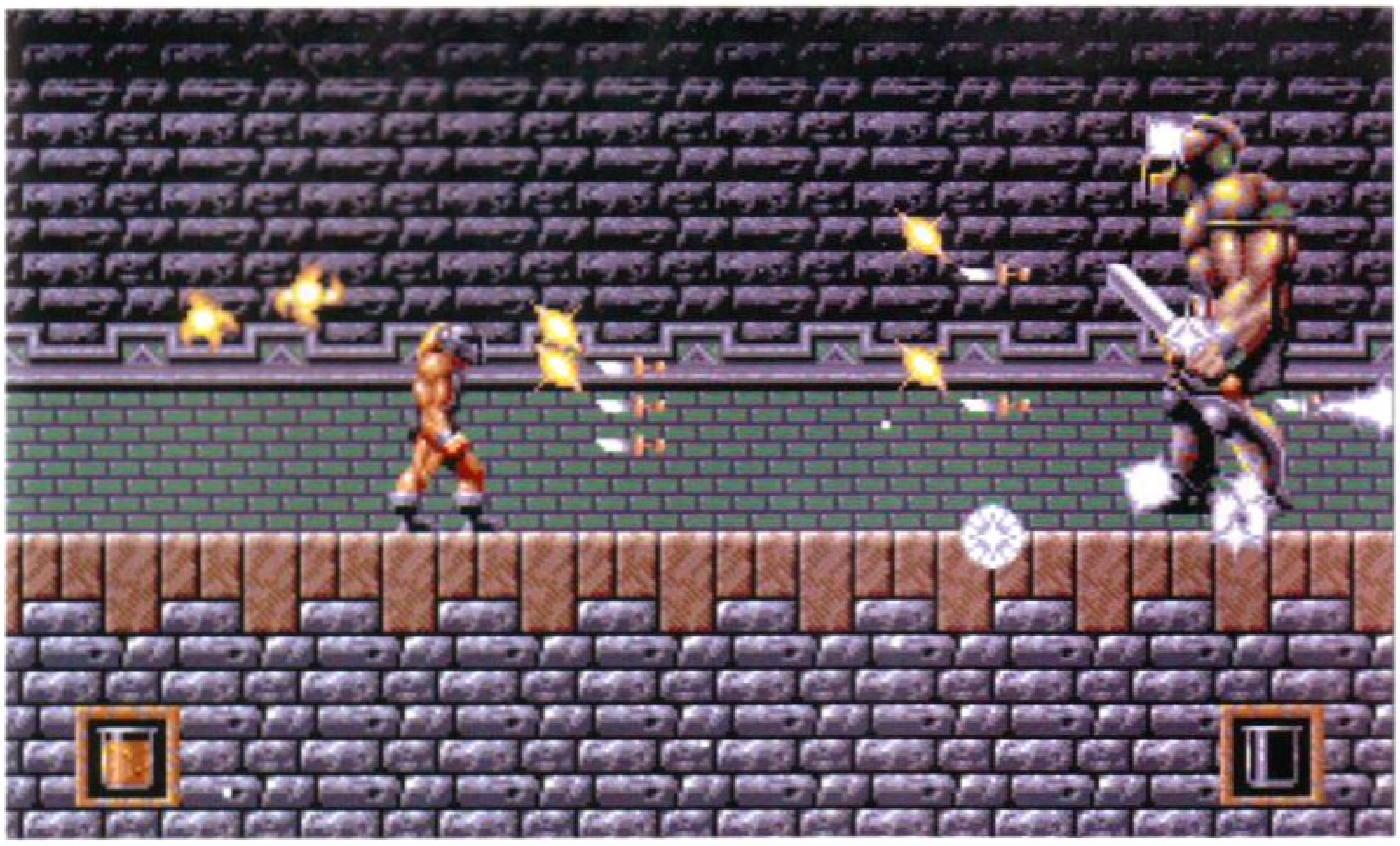
Trap-like puzzles litter the zones, increasing in complexity as the game develops. At first they are simple obstructions, which can be destroyed by a flick of the correct



Hercules busts into a room and finds another potted serpent and a teleport stone on a remote ledge. Killing the snake is easy but avoiding the small snakes in this little room could be extremely difficult.



Large gold keys are always 'world' keys but how on earth can you get it? It must have something to do with those yellow buttons. Time to go a wandering and see what items are peculiar to this level.



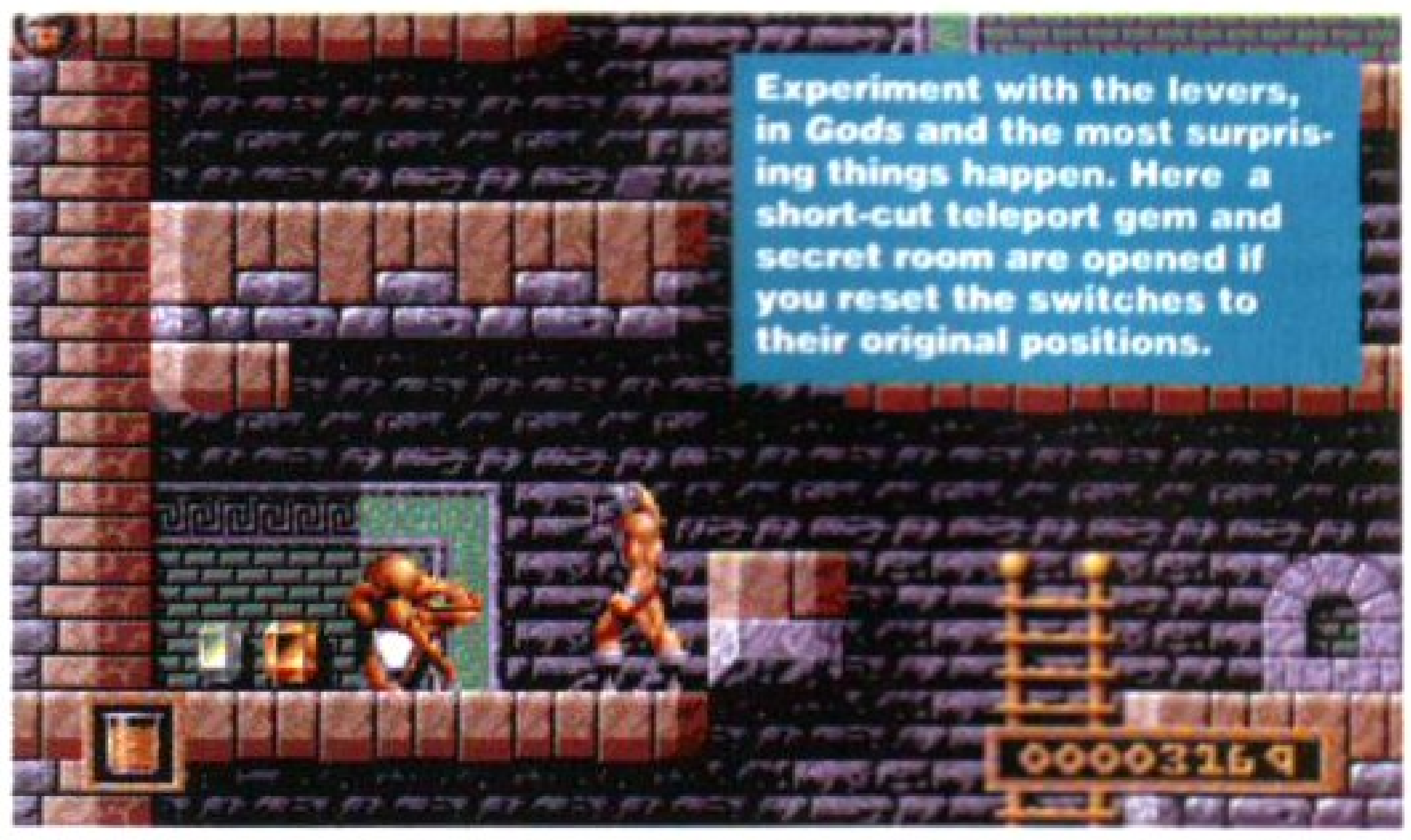


Above – kill the end-of-world bad guy and you win a visit to the shop. To summon the shop-keeper just walk over the 'circle' token and wait. As if by magic the he will appear and take you to his weapons emporium.

Left – when the going gets tough, the tough hide under the table. Luckily this end-of-world guardian is a wimp, all brain and no brawn. You must have the lightning bolt to fight him, but all you have to do is stay out of the way of his bullets. Which is surprisingly easy – for a change!

THE REAL TWELVE TASKS!

To qualify as an apprentice Immortal all you have to do is...
1. Kill the Nemean lion.
2. Kill the Lernean Hydra.
3. Catch and retain the Arcadian stag.
4. Destroy the Erymanthian Boar.
5. Cleanse the Augean stables.
6. Destroy the cannibal birds of Lake Stymphalis.
7. Capture the Cretan Bull.
8. Catch the horses of the Thracian Diomedes.
9. To possess the girdle of Hippolyta, Queen of the Amazons.
10. To capture the oxen of the monster Geryon.
11. Obtain the apples of the Hesperides.
12. Bring Cerberus from the infernal regions.
... and you thought getting a high score on a mutli-level platform game was tough!



Experiment with the levers, in *Gods* and the most surprising things happen. Here a short-cut teleport gem and secret room are opened if you reset the switches to their original positions.

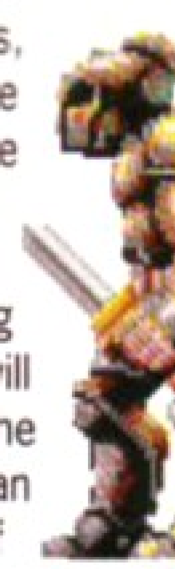
lever. Later however, Herc' is offered a vast array of switches and any one of them could remove the problem. Pressing the wrong one however, could well summon more heat than a growing God needs. The art is working out, and remembering, which levers do what. Solving a puzzle is rarely a case of just throwing one switch. Often the answer lies in a series of levers, working on a combination principal and finding the solution is not so much a case of trial and error, as die-all and error.

There are three main puzzle elements. First comes the switch throwing nightmare, which is only ever solved with a quick bout of flicking. Secondly come the keys. To enter many of the more interesting rooms you'll need the correct keys. These appear after certain core monsters or traps have been destroyed, and they are never near the door they unlock.

Here you have to check the text bar to see the keys name, then find the matching lock. Stored in Herc's three pocket backpack, the keys are used automatically when he passes the relevant door. It may still need a switch thrown though before it opens, so you're forced to continually check the inventory, to see if keys have vanished. The final and toughest puzzle element is in the quests Herc' is sent on. Each depends on you finding a number of objects (anything from gold to pieces of mosaic) and relocating them.

Good Gods?

The game mechanics maybe spiffy, but the 64 Drachma question has to be: is *Gods* any good? The answer is yes, unreservedly. *Gods* melds the standard platform run-and-shoot form with a strain of action puzzle game. What starts out as a blast, soon becomes a guessing game of great proportions. What will that switch do if thrown? Is this strange skull the object of your quest? Where the hell is the key to the door?



The pace never flags, ensuring that you race through as much of the game as is humanly possible before stopping to think. If you hang around the nasties will start seeping out of the walls again! Assess, plan and act, is the motto of

Continued overleaf ▸

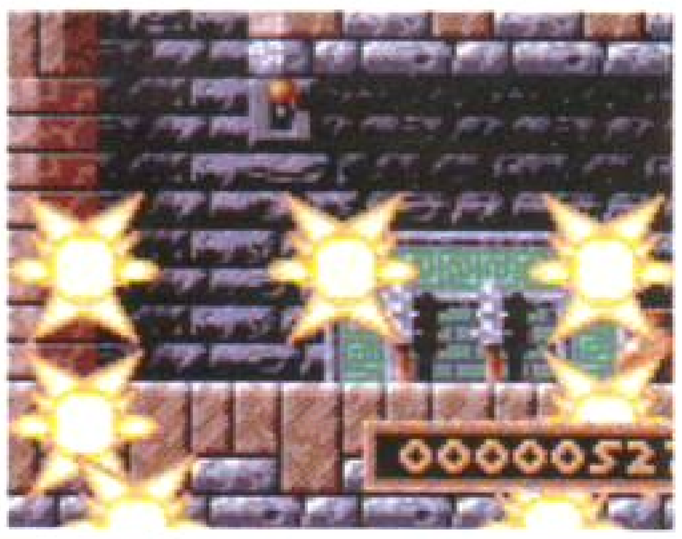
Now those small gems are strange, could they activate that yellow lights found in the 'world' key room? This pattern of play that is common in Gods, of visiting and re-visiting rooms to test out mad theories.



Every time this room was entered with a different small gem, the key drops by a third. Now after fire, water and ice it is finally low enough to jump onto. Problem solved and another world bites the dust.





If you're pegging out you might as well go out in a blaze of glory. When Hercules looses all his life energy he explodes in a shower of Renegade skulls and stars. Avoiding death is of vital importance in *Gods* because bonus scores for each world are calculated against lives and energy.



By dropping a gold key this thief has been lured out and has brought that shield with him. Thieves can always be conned like this and then killed to capture both items. Crime: together we'll crack it!



the day. A factor which is only enhanced by the independence of the monsters, who continue to hunt even when Herc` stops.

While a youth Hercules was accosted by Virtue and Pleasure and forced to choose between them. Pleasure promised all the world's carnal delights while all Virtue had to offer was immortality. Herc' chose the latter – for some obscure reason – and after a life of toil he was received amongst the gods.

Over the edge

Backing up the metallic sound effects is the great theme tune, which players of last month's Coverdisk demo will already be familiar with. The graphics have texture and atmosphere, with each level subtly evolving from the last. In fact the only irritants are the sparsity of save game points and Herc's occasional insistence on standing over the edge of platforms. The wait is easily tolerated in such a quality game but the mid-air stance does make trying to judge the jumps harder than it really needs to be. You are forced to edge out, risking a hefty fall, just so you get the best chance of leaping to the next platform. Such mechanisms have become traditionally accepted facets of platform games, but it is one convention the Bitmaps could well have flouted.

These minor gripes aside though, *Gods* looks as if it is set to join games legend. Viciously good gameplay and powerful effects have managed to make Renegade's first title an ideal debut. ***Trenton Webb***

ONE STOP SHOPPING.



At every two levels and after a whole section has been completed Herc' gets to pop into the local weapons shop. Fans of Bitmap games will be familiar with the format.

All the goodies are lined up in rows and waggling the stick rotates the highlight. Clicking on a highlighted item tells you what it is and what it does, clicking again buys the item. So you don't get confused over how much cash you have, the items out of your price range disappear. On offer in this store are: Chicken Legs (health, power 1), apples (health, power 2), Wide arc shot token, concentrated arc shot token, medium arc shot token, Bread (health, power 3), Alien freeze, Health token (third of total energy), Shuriken, Shield, Health potion (half of total energy), Starburst smart bomb, fireball, and magic hammers.

BRAINS AND BRAWN!

***Gods'* aliens are smart: they are not just pretty faces, but have ample brain-power too. Each creature has a rating for manoeuvrability, speed, morale, aggression and intelligence. Using these factors the monsters will decide when it is best, and how best, to attack Hercules. If a cowardly, but fast, beast is at the end of a wave that Herc' easily kills, then it may choose to scuttle ahead and surprise him later rather than join in the futile frontal assault. The effect this has on the game is subtle, but discernible, as the game develops around each players own style.**

VERDICT

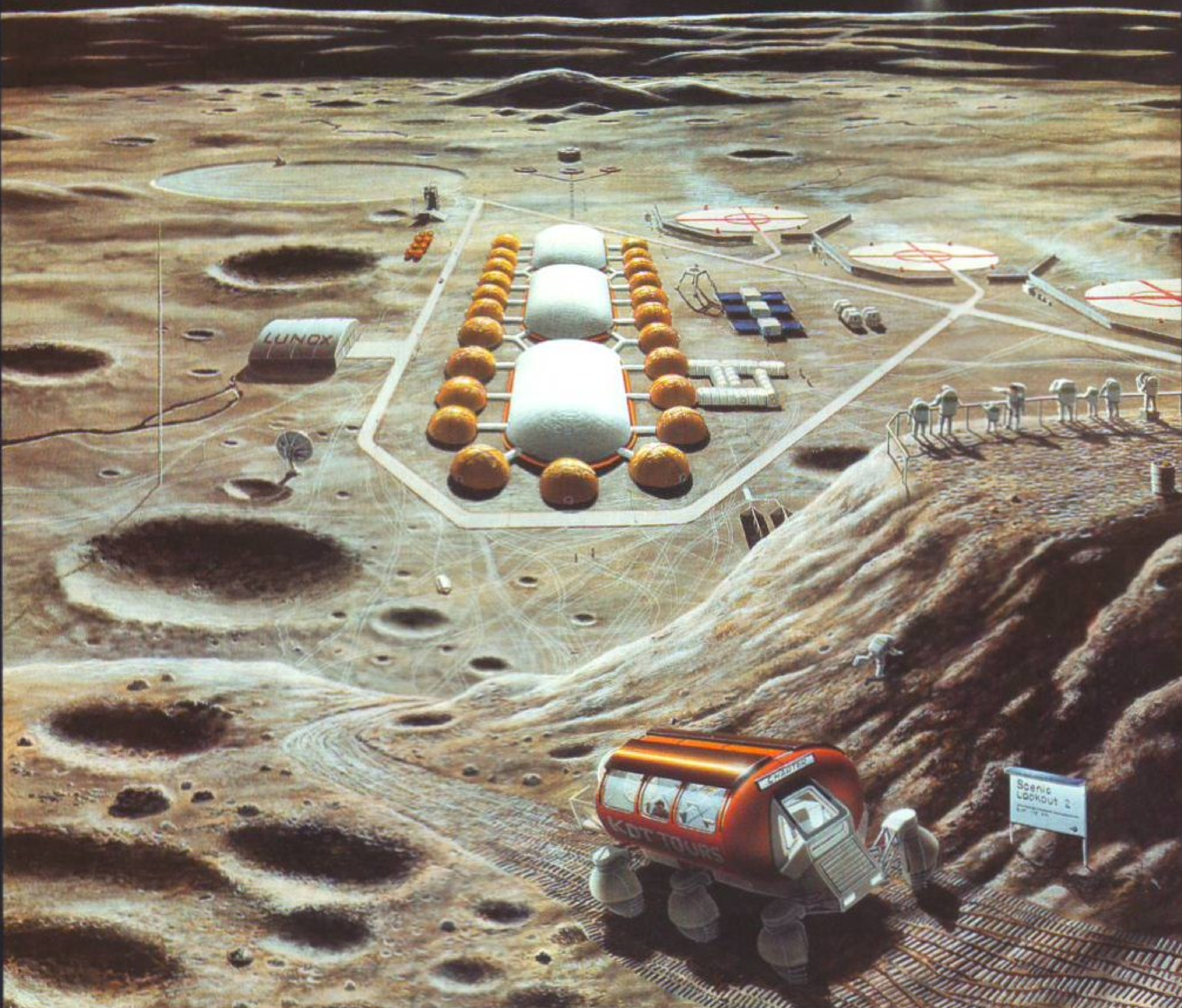
- Highly challenging platform romp with real class.
- The intelligent monsters and fiendish puzzles make life enjoyably awkward.
- Well paced, *Gods* gets easier for poor players, tougher for veterans.
- Sounds brilliant, with a strong Nation 12 theme and crisp metallic effects.
- The menagerie of foes is vast and the end-of-level guardians are something special.



MOONBASE

Lunar Colony Simulator

"..coming in fast and low from the northeastern edge of Imbrium, the lander brushed the top of the debris shield on Pad 3 West as the pilot struggled to gain minimal TDA (touchdown altitude). Priority 2 codes allowed the crew a certain amount of added speed and flexibility, but the fine line had been crossed, the room for error gone.."



Gripping stuff!

Wesson International
© copyright 1990

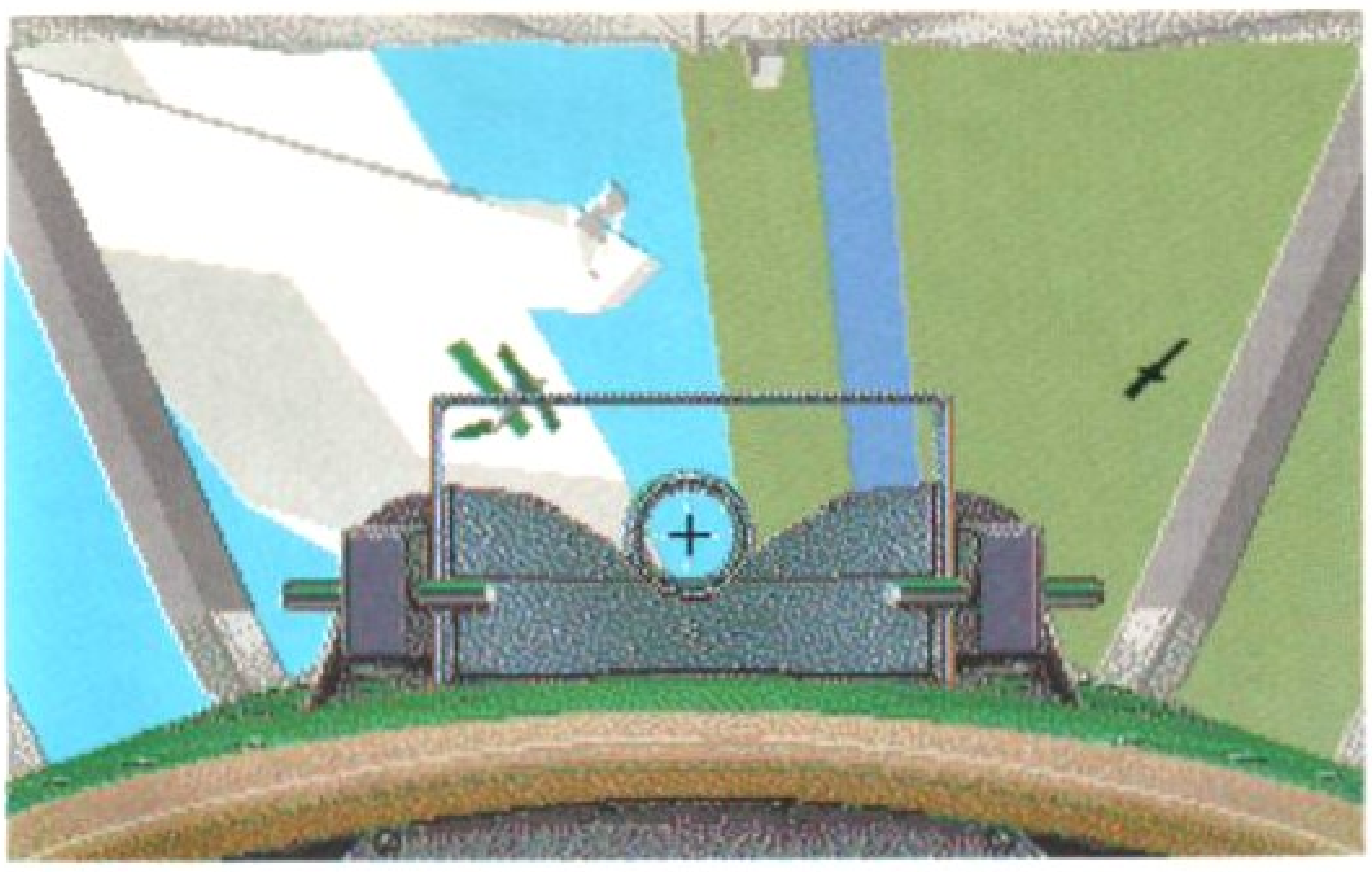
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For further information on Mindscape products and new releases, please call: 0898 234 214. Calls charged at 33p per minute off-peak and 44p per minute at peak times.

IBM PC & 100% compatibles. 640K RAM required. Hercules, CGA, EGA, VGA graphics supported. Twin floppy drives or hard disk required. Microsoft mouse optional. Amiga version available January 1991.


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Fight your way to victory with Sega's ambitious martial arts game. Battle against merciless Streetfighters as you seek revenge for the killing of your loyal student Kato, whilst trying to foil the evil Sauros.
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Bandits at 10 o'clock! Good, well we've got half an hour to wait then. Turning off the cockpit controls enables a larger action window. Clouds can be turned on or off, but heavy cover is useful in dogfights such as this.



ACES OF THE GREAT WAR

MINDSCAPE ■ £34.99

Joystick, mouse or keyboard

Chocks away chaps! Forget the radar, forget the missiles, the ejector seats and (most unfortunately) all amorous thoughts of Kelly McGillis – *Aces* places you not in a state-of-the-art F-16 Falcon, but in the ramshackle cockpit of a selection of eight First World War aircraft.

Journey back to the days of leap-frog in the mess, stiff upper lips and bountiful supplies of crumpet. The men (usually called 'Ginge') were magnificent – flying machines made of balsa wood and cloth (to a standard of engineering precision even *Blue Peter* would be embarrassed of). No parachutes or bullet-proof glass – just you, your machine-gun and your 'kite'.

Aces attempts to recreate this era of heroes and 'flying by the seat-of-your-pants' aerobatics by offering you a selection of game modes built around a basic bank-climb-roll flight-simulator package.

Tommy or Jerry?

Allied or Axis? Which side to enrol is the first moral decision you have to make. You remain registered until you're shot down or fail to land safely. You can enter several pilots simultaneously on either sides of the fence and fight according to how patriotic or 'Fritzy' you're feeling. Next you must decide which 'kite' to fly. A nice demo sequence allows you to chose from eight different aircraft and having successfully chosen your Sopworth Camel Gti 4x4 'Popular Plus' it's almost time to go up, down, flying around, looping-the-loop and defying the ground.

Hang on though, as first you have to select your adventure. Assuming you wish to do more than just dogfight or practice, there are three campaigns to explore, 'Bloody April', 'Battle of Amiens' and the 'Ludendorf Offensive'. Each comprises of missions fought over the same area. This way, you learn the landmarks – useful when you're upside down with some angry Fokkers up your exhaust port.

Missions include protecting an air base from enemy bombers, photo reconnaissance, bombing raids and balloon-bursting exercises. Complete each mission in all three campaigns and you're awarded the Blue Max or the Victoria Cross (depending on which side you're fighting for).

Simultaneous two-player action is a useful option. Fighting head-to-head or as wing-men, provides an extra dimension to the otherwise rather repetitive game scenario. Another useful inclusion is the 'strategy game'. One or two players can plot out their manoeuvres step-by-step on a grid and then see the results played back in real time.

Perhaps the most entertaining extra is the VCR facility. Engaged when things hot up, you can record and playback your enemy's final splutters and reflect upon the noble death of your 'brother in arms' who in peaceful times could have been a friend ... Either that or have a good gloat. More likely still, see where you went wrong as your burnt-out plane spirals downwards.

Seat of your pants

Basically, Mindscape have developed a flight simulator program around which 'extra' peripheral features, replays and game-modes are bolted. Unfortunately, the whole package doesn't quite come off. If a flight simulator is to lose the missiles, radar, ground attack, in-flight refuelling, HUD and lock-on that provide the 'hook' for the majority of hi-tech simulator games, then there had better be a good reason. In this case, it was the attempt to recreate the simple 'flying spirit' of the first world war. Nice idea – but with only mediocre graphics, it hasn't paid off.

The graphics can be quickened up – at the expense of detail and sound effects – but even the smoothest of sorties won't provide you with the 'skin-of-your-pants' exhilaration that was intended. Still, if flight simulators are what light up your particular Christmas tree, then *Aces* is worth a try. Smoke me a kipper, I'll be back for breakfast...

Neil West

THOSE MAGNIFICENT MEN'S FLYING MACHINES



1. SOPWITH CAMEL
Probably the best known plane of the war, taking its name from the 'hump' over the engine cowling. A sensitive plane – requiring a sensitive pilot – and is quite nose heavy, making the risk of a spin all the more likely. Each plane could carry four 250lb bombs with a forward-firing machine-gun. Almost 5,500 were built, and the 'Camel' claims more kills than any other plane of the Great War.



2. NIEUPORT NIE 17
This was the favourite amongst the allied aces. Quicker than the Camel, the Nieuport also carried electrically-fired rockets for the destruction of enemy balloons.

The Camel and the Nieuport are just two of eight different planes you can choose from – each with individual characteristics and specifications. Which will be your favourite 'kite'?

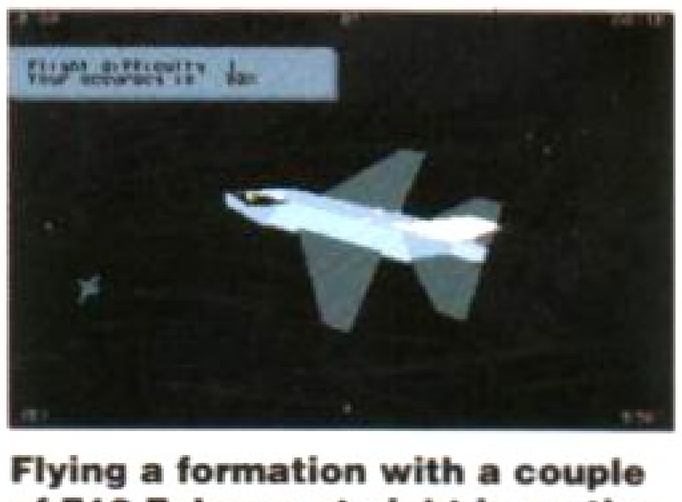
VERDICT

- **Great idea let down by mediocre graphics.**
- **Lots of extras built around basic flight simulator program.**
- **Two-player mode offers extra dimension to game scenario.**
- **Great packaging provides background info on he pilots, planes and campaigns.**





It's only a Piper training aircraft, but as it swoops down over the airport (where it's supposed to be landing) it manages to pull 13.4G. Impressive, considering that most people die at about 10.



Flying a formation with a couple of F16 Falcons at night is particularly trying. The other aircraft can just be seen (as it heads off in a totally different direction).



With ease, you slide under a large bridge in Chuck's back garden. You can view your plane from any angle. Hitting Return dumps you back in the cockpit after a second or two's pause.

CHUCK YEAGER'S ADVANCED FLIGHT TRAINER

ELECTRONIC ARTS ■ £24.99 Joystick

Chuck Yeager is a big man among big men. The USA respects success, and no-one has been more successful at flying American aircraft than him. From his incredible performance in World War II to pioneering the supersonic rocket series, he's sought to be the best. So there's no-one more qualified to train you in advanced flight.

As Chuck can fly anything with wings, then so can you. The aircraft selection is huge (see below). But the cockpit displays are standardised to prevent mind-numbing disorientation when you swap from a Spad to a Shuttle. Each plane handles much as you'd expect, however.

Fly by night

Chuck Yeager's AFT is divided up into lessons which can be tried in any order. They consist of such delights as formation flying, landing, navigation, night flying or even zipping down a canyon at low level. There are about 10 such scenarios, scientifically designed to teach you varying flight skills.

Emphasis is placed on your (hopefully developing) flying skills throughout the program. This is admirable but it means that all the planes are very sensitive and finicky to fly. They tend to lurch around drunkenly if you're not incredibly gentle. If you're used to a game like *F19* you will either see this as a realistic challenge or a huge annoyance.

During the game you are instructed by Chuck. His teachings consist of an audio cassette to play, and a series of laconic comments about "drilling yourself to China" being printed on screen during times of crisis. Other aids, such as targets to aim at in the sky, appear with the intention of teaching you indelible lessons.

Buy the farm

There isn't any combat involved, but if you get lonely in your cold blue heaven you can try formation flying. This can be done at any level up to the Thunderbirds or the Blue Angels, flying F16s or F18s respectively. It's not easy and Chuck's comments get more caustic as his patience is tested.

Unfortunately, whilst the controls are sensitive and 'lifelike', the graphics don't update quickly, leading to the off-putting impression that you're just wallowing around in a very jerky sky. It's a pity because the graphics would otherwise be acceptable. Some of the outside views are nice but occasionally hiccup, showing you disconnected polygons. Combine this with the slow speed, and the program doesn't really come up to the slick level set by most Amiga flight sims today. The lack of any particularly exciting things to do means that long-term gameplay suffers.

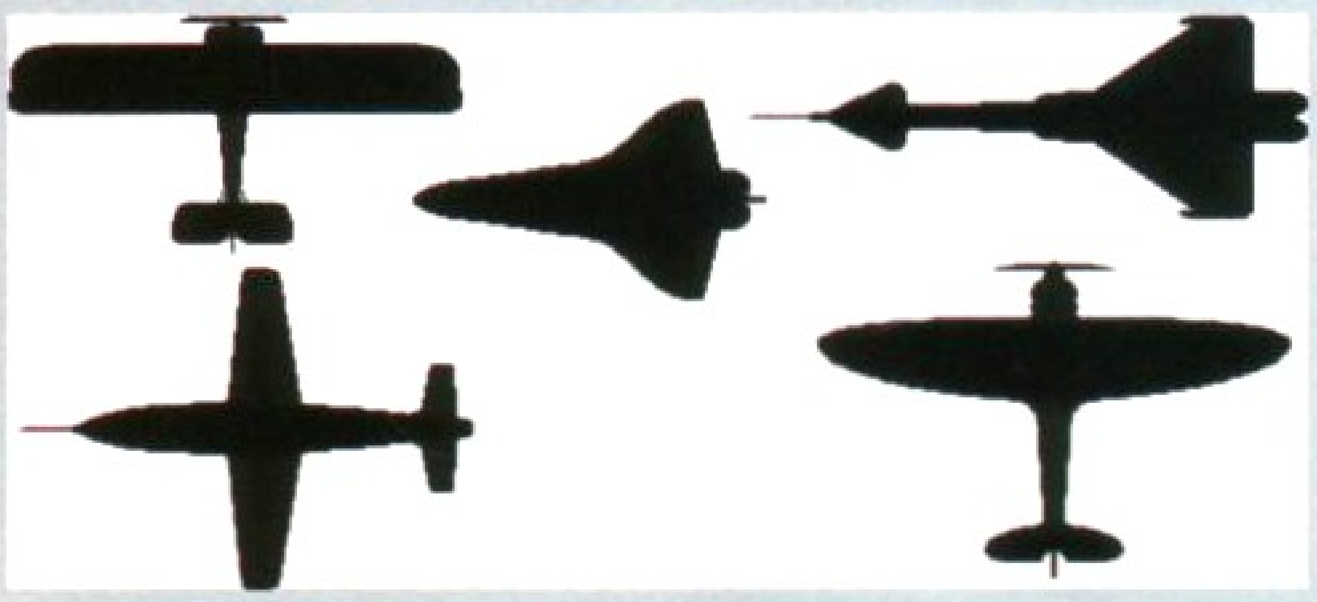
If you like general aviation rather than combat, and fancy trying your hand as a formation pilot, you might find *AFT* reaches your itch. But sadly for most, the program doesn't quite come up to scratch. ***James Leach***

VERDICT

- Complex and difficult game to get into.
- A lot of aircraft and quite a few scenarios make it varied.
- The lack of combat is a let down.
- The aircraft are too sensitive and the graphics suffer as they are just too slow.
- Apart from the formatting and the Space Shuttle thrill, it's all been done before.



TROUBLE CHOOSING A MODEL, SIR?

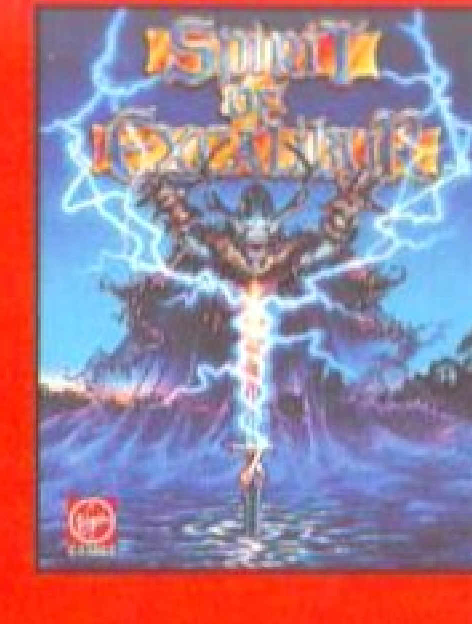


At Chuck's Aviatory Emporium you come away with the plane of your choice. There's a wide selection to choose from – about 20 aircraft in total.

Nostalgia buff? You can chug around in a Sopwith Camel or Spad, feeling the wind in your hair. If you want something racier, try a Spitfire, a Mustang or even an F16. If that's not satisfying your need for speed, you can climb into an SR 71 reconnaissance plane. If Mach 3+ still doesn't get you there, try any of the experimental X range of rockets. They're a bit of a handful, but fun.

Still not happy? Want the ultimate ride? OK, just for you, here's a low-mileage Space Shuttle. In white, with power steering, air conditioning and a hatchback. It doesn't come with fuel, so you'll have to glide it down, but don't let that put you off. Now step inside my office and we'll talk about insurance...





A blend of fantasy role-playing, adventure and combat simulation set in a richly detailed world of mountains and rivers, villages and cities, castles and ruins of Medieval England.

Knights and lords, wizards and clerics of the court of Camelot are yours to befriend and command. Interact with peasants, warriors, maidens, nobles and bandits improving their abilities and skills as you go.

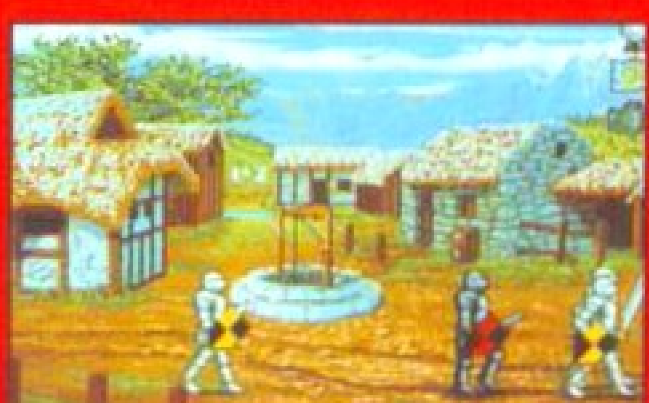
Features:

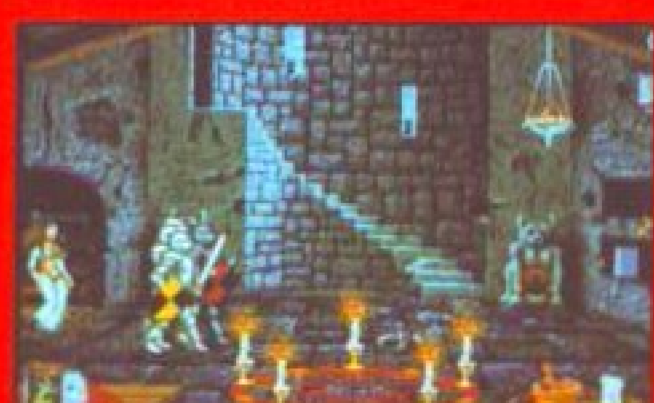
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* Hundreds of hours of play-time
* PC version supports Roland MT-32, Covox, Adlib and CMS sound boards

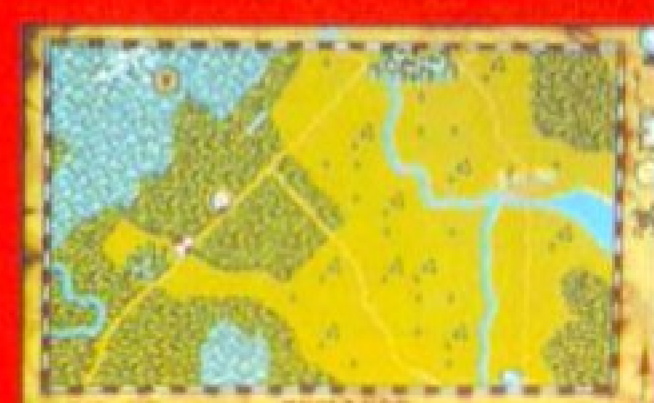
A KNIGHT TO REMEMBER

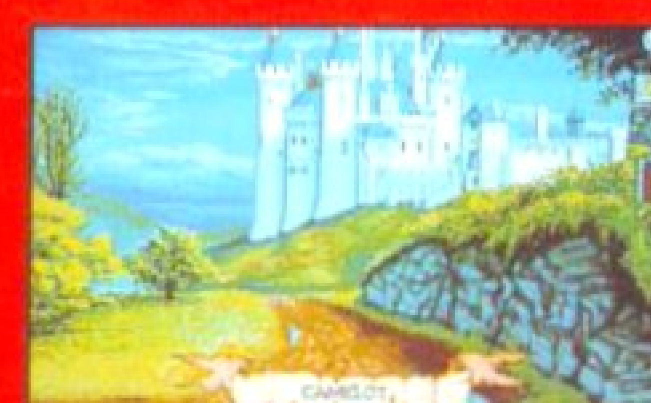
Available on:

IBM PC (VGA, MCGA, Tandy, EGA)	**£34.99**
Amiga (1 megabyte only)	**£29.99**
Atari ST (1 megabyte only)	**£29.99**









IBM PC VGA SCREEN SHOTS SHOWN

Virgin GAMES IMMACULATE CONCEPTS

VIZ THE GAME

VIRGIN ■ £19.99 Joystick

fnarr! fnarr!



At the start of the country leg of the Fulchester Fun Run, the characters are lining up ready for the action. Roger 'Banana-Tree' Irrelevant is ready with his starting fish, so our TV celebrity can make a quick getaway – as he makes his intentions quite clear to the viewers.

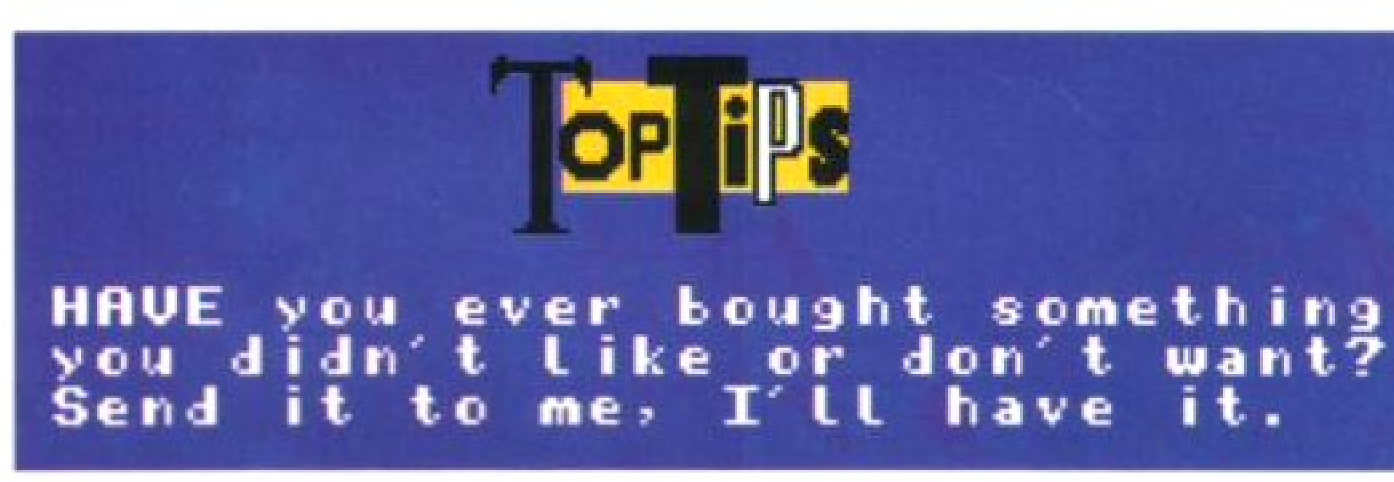
When a magazine is as successful as *Viz*, with its circulation topping a million copies every two months, it's not surprising that it should have its characters licensed for use in a computer game. *Viz – The Game* features many of the cartoon folk found in the comic's strips, including Bertie Blunt (and his unpleasant parrot), the Pathetic Sharks and those luscious, beautiful Fat Slags.

YOUR PRESTIGIOUS COMMENTATOR... ROGER MELLIE



Bacon

The player has the choice of playing one of three characters – Biffa Bacon, Johnny Fartpants or Buster Gonad. The game takes place over various sites near and around the thriving metropolis of Fulchester in the guise of a charity fun run. There isn't much evidence of charitable exploits however, since each of the three characters tries to win the race using whatever methods they can muster.



Beef

Along the stages, the racers will come across various obstacles, which are relevant to the current stage. For example on the country stage tree stumps and fences block the way, while in the town, potholes and parked cars must be



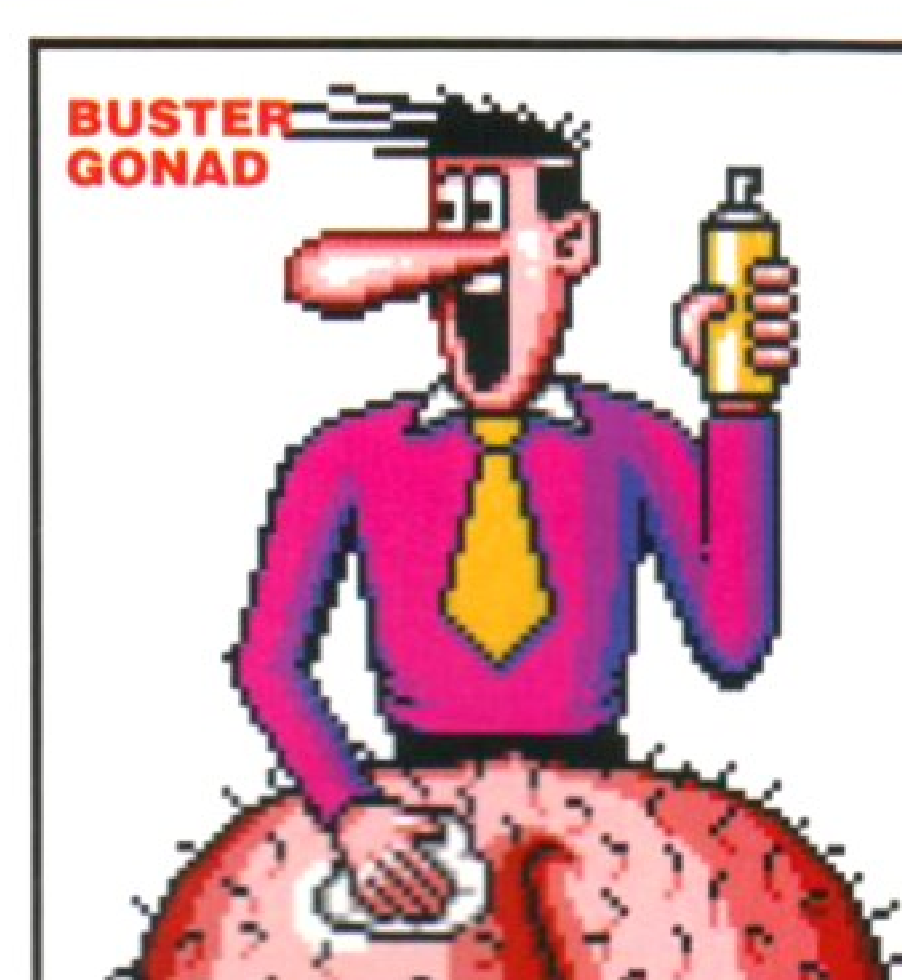
Despite being nobbut a young 'un, Biffa is THAT hard. His special powers involve him thumping anything that gets in his way, so that he can knock a safe path through to the finish. Initiating his superpower sends him into a 'lager frenzy', in other words a blinding fit that smashes anything barring his way.

Biffa collects tokens in two ways. The first is a beer-drinking race, in which he must drink pints as they are hurled along the bar to him. The second is an exercise in timing, in which Biffa must punch, butt and kick bricks that are thrown at him.



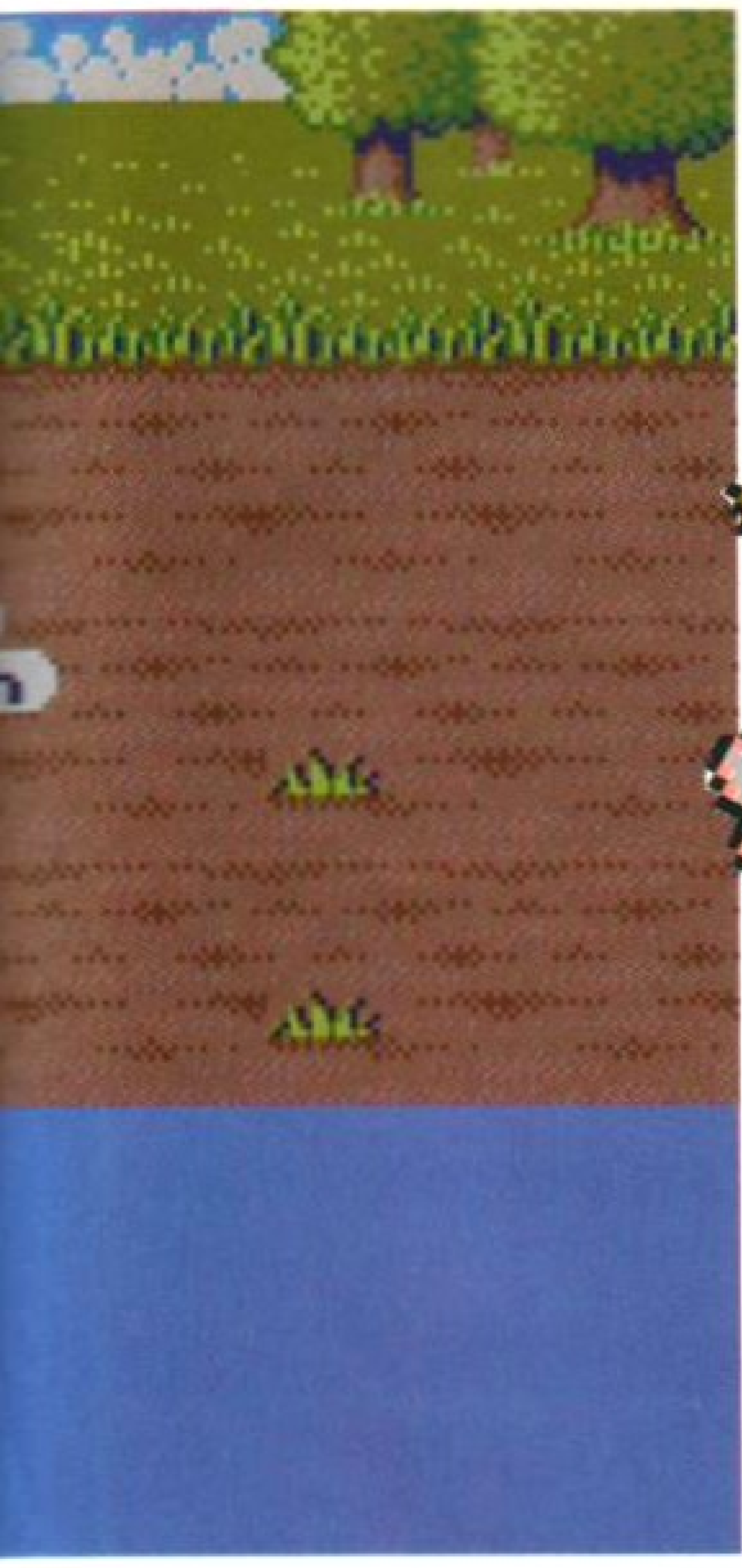
'The boy with the musical bottom' uses his pump-prowess to pop out a fruitful burst to propel himself over obstacles. Johnny's superpower is a high-powered mega-guff, which carries him forward and over traps at great speed.

In order to use his powers, the prince of parps gathers tokens by either inflating balloons with his gaseous behind, or bursting skyward with a high-power chuff, which is measured on a pole. The higher he manages to get, the more trump-tokens he earns.



Buster spends most of his time in the race running along holding his plums off the ground, but he can use a ball-bounce to avoid obstacles along the route. Occasionally, he can get over the problems caused by his impressive appendages by taking out a wheelbarrow and wheeling his balloons along at top speed.

Buster's tokens are earned by working in a pancake factory, where he uses his titanic testicles to flatten the pancake dough. Another round has Buster bouncing on his mighty bollocks to get as high as he can.





avoided. Each player must stick to their own lane as much as possible, otherwise Rodney Rix will make an appearance and hurl a piece of hefty masonry at the straying racers.

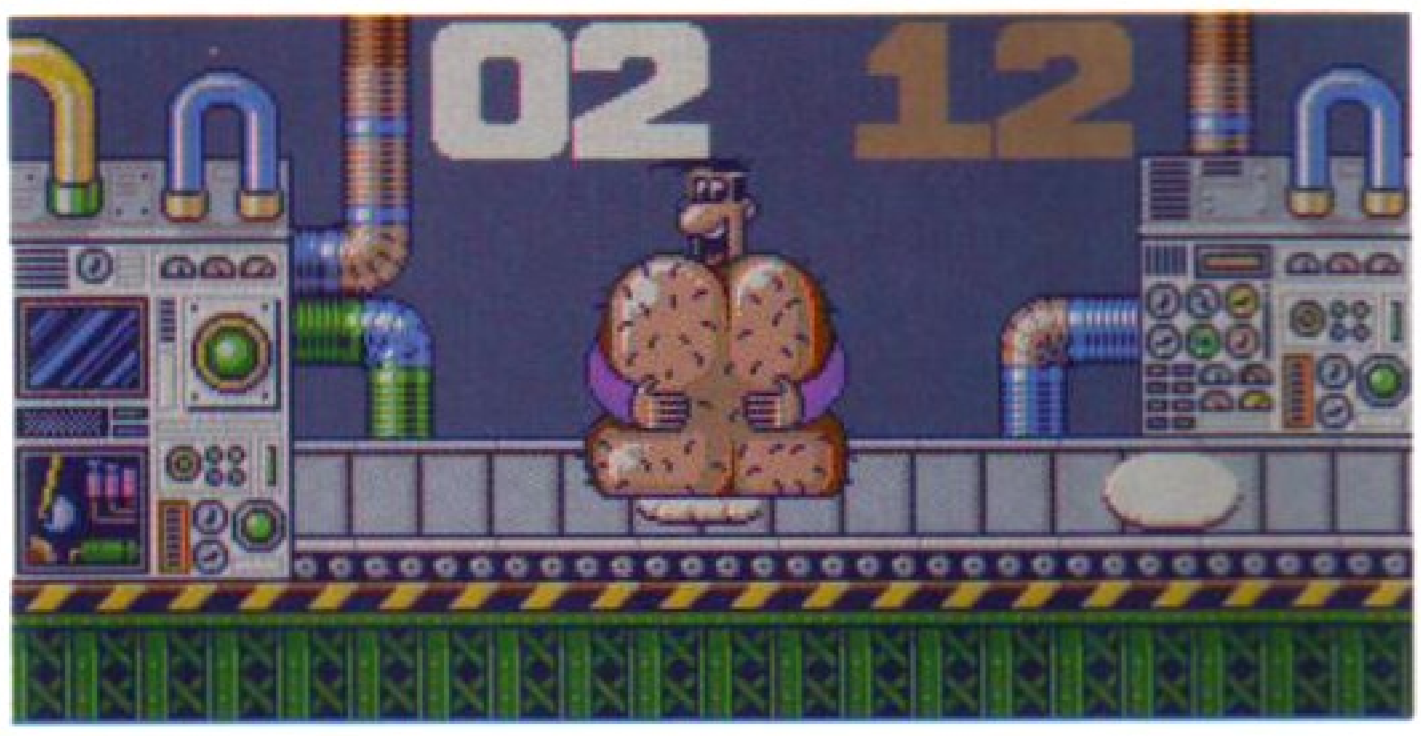
In order to qualify for the next stage, your character must cross the finish line first. Lose and you will have to run the stage again.



Racing through the town, Buster has managed to lift his unwieldy plums over the roadworks and Biffa is hot on his heels. But Johnny has run out of guff power and is trapped behind a pothole.



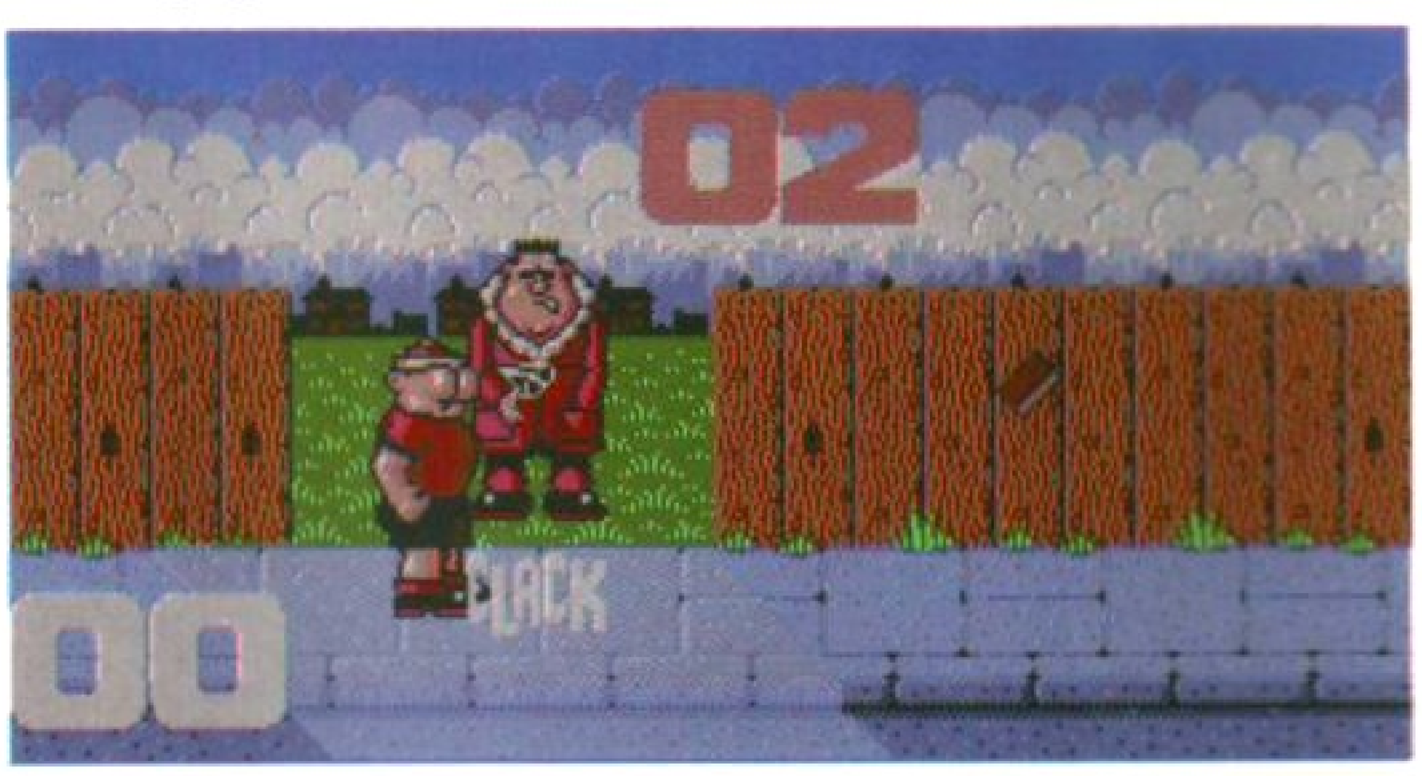
Why, oh why, oh why when anyone tries to do something for a good cause there has to be one person that tries to ruin it for everybody. The Parkie's track record *is* severely unpleasant though!



The Fulchester Pancake Factory is the scene for one of Buster's sub-games. Use his gonads to flatten the dough and gain bonus tokens.



In one of the more dextrous sections of the game, Johnny must use his trumping talents to inflate balloons for the town Carnival.



As Biffa innocently flails away at flying masonry, Big Vern makes an appearance. 'Yer aal comin' wi' me, yer bastards!'

Garlic-flavoured luncheon meat

The initial reaction to the *Viz* game is one of amusement, since the characters from the comic have been translated to the computer pretty well.

The graphics capture the feel of each character, but unfortunately, their actions don't really reflect their page-persona very well at all. The game employs some elements of each characters personality but only in a kind of superficial way, so the package as a whole isn't really that funny after five minutes.

The gameplay itself tends to be rather frustrating, especially the sub-games. For example, in one of Buster's token-grabbing exploits, the idea is to rise as high as possible with guff-power, but fall back down from a particularly lofty height and you lose all your score!

The race sections are alright, if a little mundane. All that is required is to run down to the race track dodging the odd obstacle or character. Seeing the Viz characters for the first time on new levels is a laugh for a couple of minutes, but the novelty soon wears off and it won't be long before you return to the comic itself to get your laughs.

Maff Evans

VERDICT

- Well drawn, colourful graphics provide a good rendition of the comic characters.
- The sound is a particularly annoying, twee soundtrack which will soon be turned off.
- The initial humour of the game is soon replaced by boredom.
- The main race section of the game is not anything new.
- A promising licence which unfortunately doesn't live up to its potential.
- Reading the mag is more fun and cheaper!

70%

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In yet another sequel release to sit alongside the inevitable appearance of follow-ups to *Highlander* and *The Terminator*, that ugly jungle hunter, the Predator, is back!

The year is 1997 and a vicious drug war between rival Jamaican and Colombian gangs is ripping the city of Los Angeles apart. Detective-Lieutenant Mike Harrigan is at the head of a special LAPD task force to try and clean up the streets and put an end to the carnage the gangs are causing.

It's a slaughter

A violent incident has occurred right in the heart of the city. Two motorcycle traffic cops pulled over a suspicious-looking van in a routine traffic check, only to become involved in a complex drugs stake-out which subsequently turns into a vicious gun battle.

As if trying to stay alive during a fully-fledged shoot-out, while avoiding killing innocent citizens, wasn't enough, Harrigan has another problem to deal with...

An unseen force is killing people on the street. Vicious attacks are being carried out on gang members of both sides as well as the police. No-one sees them, but the weapons used to annihilate the victims are most certainly not Earth weapons. The Predator has hit town!

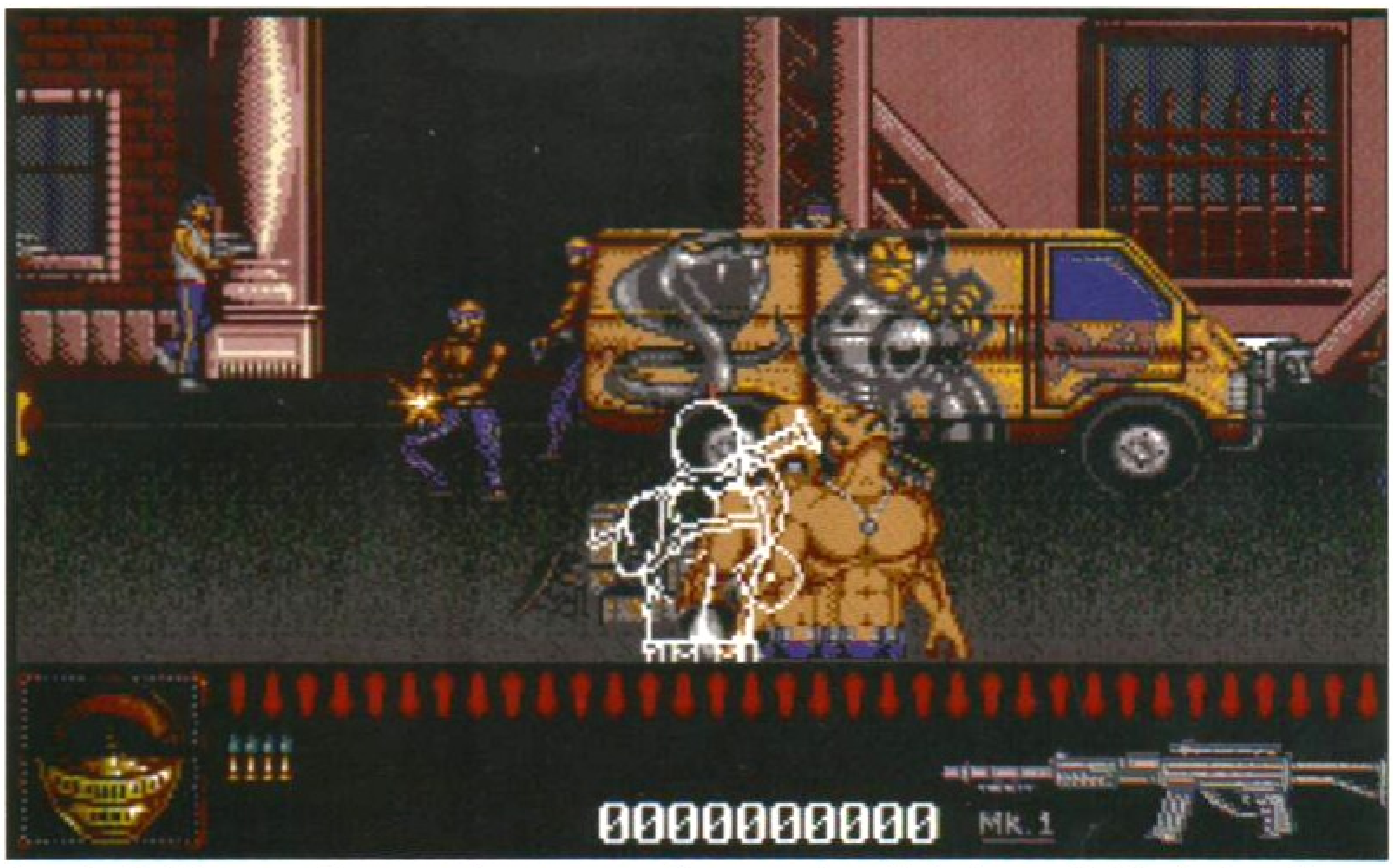
This alien hunter is drawn by heat and violence, and the most violent time in LA's history also coincides with the hottest summer in the city's history. Now Harrigan has two problems. Defeat the drug barons to dismantle their operations and overcome the challenge of the Predator.

In the heat of the night

You play the part of Mike Harrigan in Image Works' conversion of the film. The game itself is a combination of *Operation Wolf* and *Dead Angle*. You are shown as a white outline at the front of the screen, armed with the currently active weapon. You must take out the members of the drug gangs while watching out for innocent people, since if you shoot too many bystanders, you are taken off duty by your captain.

As well as the odd pedestrian, annoying gangs of TV news reporters appear, blocking the street and even attempting to interview Harrigan in the middle of a gun battle!

Occasionally, the vague form of the Predator can be seen walking along the walls. Sometimes he will train his sights across the battlefield and take out the odd gang



A van load of drug-crazed gang members appear on the scene. A particularly mean-looking bruiser tries to 'stick one' on Lieutenant Harrigan, but a swift swing with the butt of a hefty assault weapon like this should just about put him out of action.

PREDA

IMAGE WORKS

member. If any of your shots hit him, he lets out his almighty roar and lets rip with one of his weapons. These range from Missiles and flying discs to rocket-powered capture nets. To avoid taking hits from these, you must shoot them out of the air – still watching out for attacks from gang members!



Catch that funky dread

Despite being based on a fairly derivative theme, *Predator 2* is quite an entertaining romp. The graphics are bold and colourful, and the sound effects back the action nicely. The weapon effects are extremely satisfying and the howl of the Predator is suitably sinister. The strange rippling shadow of the alien hunter is pretty effective too, drawing your attention away from the action from time to time (usually at just the wrong moment). Booting up the



No messing around here. A single blast with a high-powered grenade launcher is just the thing for clearing the streets of these yobboes! Unfortunately, any innocent pedestrians that happen to stray along will end up with a face full of shrapnel, so careful timing is needed.



The end of the street and Harrigan has managed to stir up a whole nest of trouble at the drug lord's HQ. That's the blighter himself, sporting the natty blue duster coat. This isn't really the time for fashion tips though, just let the mother have it!

TOR 2

£25.99 Mouse or Joystick

second disk loads up an atmospheric animation which introduces you to the story and sets the tone for the game ahead.

Pre-dated

The gameplay is nothing new, being a simple 'blast everything you see except some innocent targets'. This has been seen in a whole host of pretty average games, but *Predator 2* manages to improve on the atmosphere, speed and action of all the other games in the genre, ending up to be a highly enjoyable, violent blast.

The only real problem is the long-term interest. Once you've killed about half-a-million gang members and wasted all the drug barons and aliens you can find, it may lose it's appeal. The lack of real depth to the game will probably mean that it will soon get relegated to the top shelf and just collect dust.

On the other hand, for the odd 10 minutes of total mindless blasting it's the perfect thing!

Maff Evans



Harrigan storms through the hotel on Level Two as he tries to reach the Jamaican drug baron's penthouse apartment. Those waiters aren't as innocent as they look though – just check the bulges in their jackets. It's not that they're pleased to see you, it's more likely that their packing heat.

THE GUN CLUB

As the game progresses, new weapons with their own specifications appear:

.45 MAGNUM AUTOMATIC



A small weapon with infinite ammunition supply, but it's firing rate is the slowest of the available weapons.

RIFLE MK III



A standard police-issue weapon with an average power and firing rate.

SHOTGUN MK II



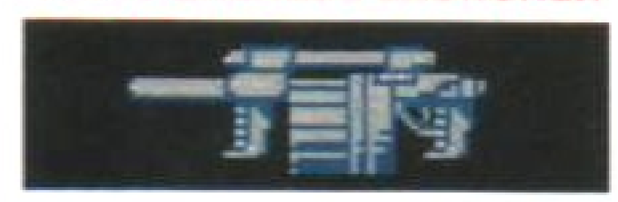
A reasonably powerful weapon with a fairly good rate of fire.

ASSAULT SHOTGUN MK I



Despite using standard clips, the Mk I is a powerful attack rifle with a high rate of fire.

M-203 GRENADE LAUNCHER



The most powerful weapon available. This is a single-shot launcher. Takes out everything in the vicinity.

VERDICT

- Nicely presented shoot-em-up with smooth graphics and powerful sound.
- The atmospheric intro sequence sets the tone marvellously.
- The action is mindless, but it's still enjoyable.
- There may not be too much long-term interest, but *Predator 2* is fun while it lasts.
- The best Op' Wolf-style game available.



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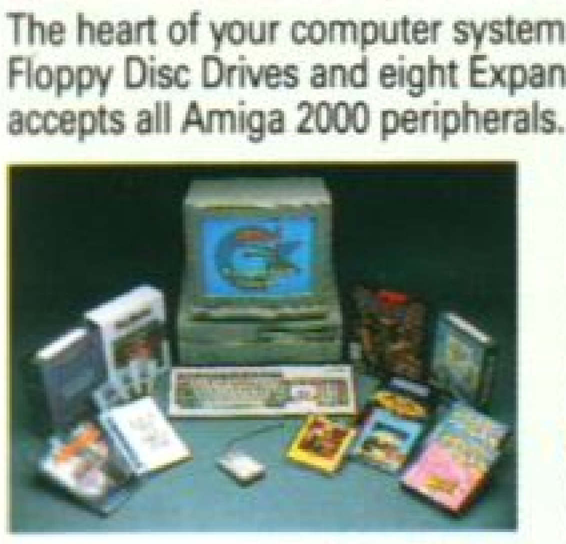
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Furillo's office is a humble affair. From here you can check officer statistics, assign officers to cases and see instantly whereabouts each officer is from the wall map.



Officer Coffey is en route to the railway station where there's been a report of a bag snatching. This is Chicago however and the paramedics might be needed.

HILL STREET BLUES

KRISALIS ■ £24.99 Mouse

Freaky licence of the year award, certainly goes to Krisalis. The hit American cops-and-robbers series may be over, but the memory kinda lingers. *Hill Street Blues* was one of those 'gritty' true to life programmes which appealed to the viewing public because the characters were something more than cardboard cut-outs. The problem in converting such a series into a computer game is in retaining that realism and characterisation. So have the programmers managed it?

Roll Call 6:52 am

The easiest way of thinking about *Hill Street Blues* is as *Sim City* with cops and robbers. The idea of the game is to manage the Hill Street precinct. You take on the role of Captain Frank "Frank" Furillo and your job is to allocate your resources so that crime is kept down to an absolute minimum.

The game starts with a polished introductory sequence which familiarises you with the officers at Hill Street. The all too familiar words "Roll Call 6:52 am" then appear on screen and the game proper starts.

Your initial duty is to allocate rookie cops to certain areas of the city. This can be quite important, as if you need back-up in a rough area, you will need to know that he or she isn't going to bottle out. With these people in place the main game screen appears and AJ, the radio operator, introduces herself.



But dash it all Holmes, how did you know it was the window cleaner with the manure on his trousers? Smellementary, my dear Watson.

Let's be careful out there

The control of the Hill Street precinct is entirely by means of icons. Each officer can act independently of the rest of the squad, therefore it's possible to have all your officers out at once tackling completely different crimes.

Once A.J. informs you that a crime is in progress the first job is to find out where it is. This means scanning the map screen by clicking on each block in turn, valuable minutes can be lost if you have to check the whole map. Then with the destination set, you pick an officer, send them to their car and then on to the crime's location. While the car is en route it's advisable to call up Furillo's computer to see if there is a picture of the criminal on file.

When the officer arrives a new set of icons come into play. Pedestrians can be compared with the description of the criminal. If these match then the person can be apprehended. If they try and escape you can either chase or shoot them. Should the crime have been violent then paramedics can be called, if there is more than one assailant then back-up can be called for.

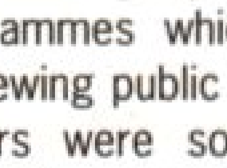
Guilty as charged

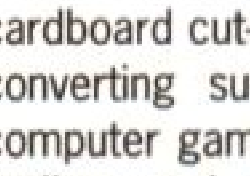
Against all odds, *Hill Street Blues* is a lot of fun. Initially it's quite bewildering. There are 48 different icons to get used to and it can be frustrating to lose your way while a criminal is doing his best impression of Ben Jonson.

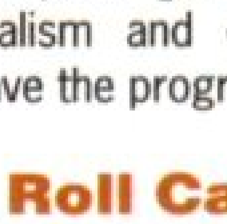
The pace of the game hots up quickly. No sooner have you allocated your last officer to a crime and AJ comes over the radio to report another crime. You have to constantly check the progress of your officers, sending the right person to the right job. Get it wrong and crime will escalate, and eventually the mayor will replace you.

Graphically the game is nothing special. The icons are clear and functional. The graphic stills are adequate and the animation's fine, though slow at times. Sound is uninspiring, consisting mostly of car horns. ***Andy Hutchinson***

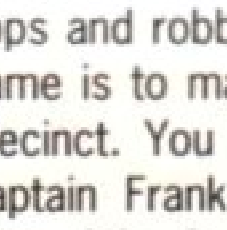
CAR 54 WHERE ARE YOU?

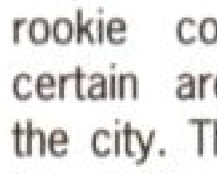

Enter Furillo's office to examine crime file and view officer statistics.

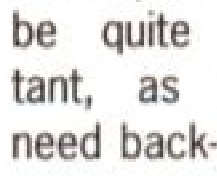

This is to access the city map.

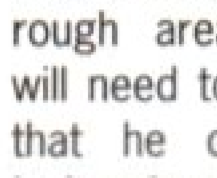

Send officer to a destination.

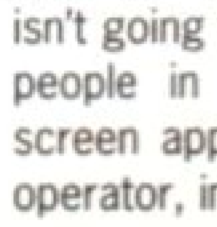

Select a different officer.

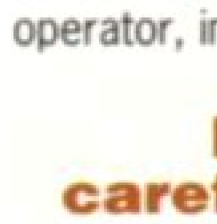

Use to approach a suspect.


Enter/leave car.


Use the radio.


Assume direct control of the officer.

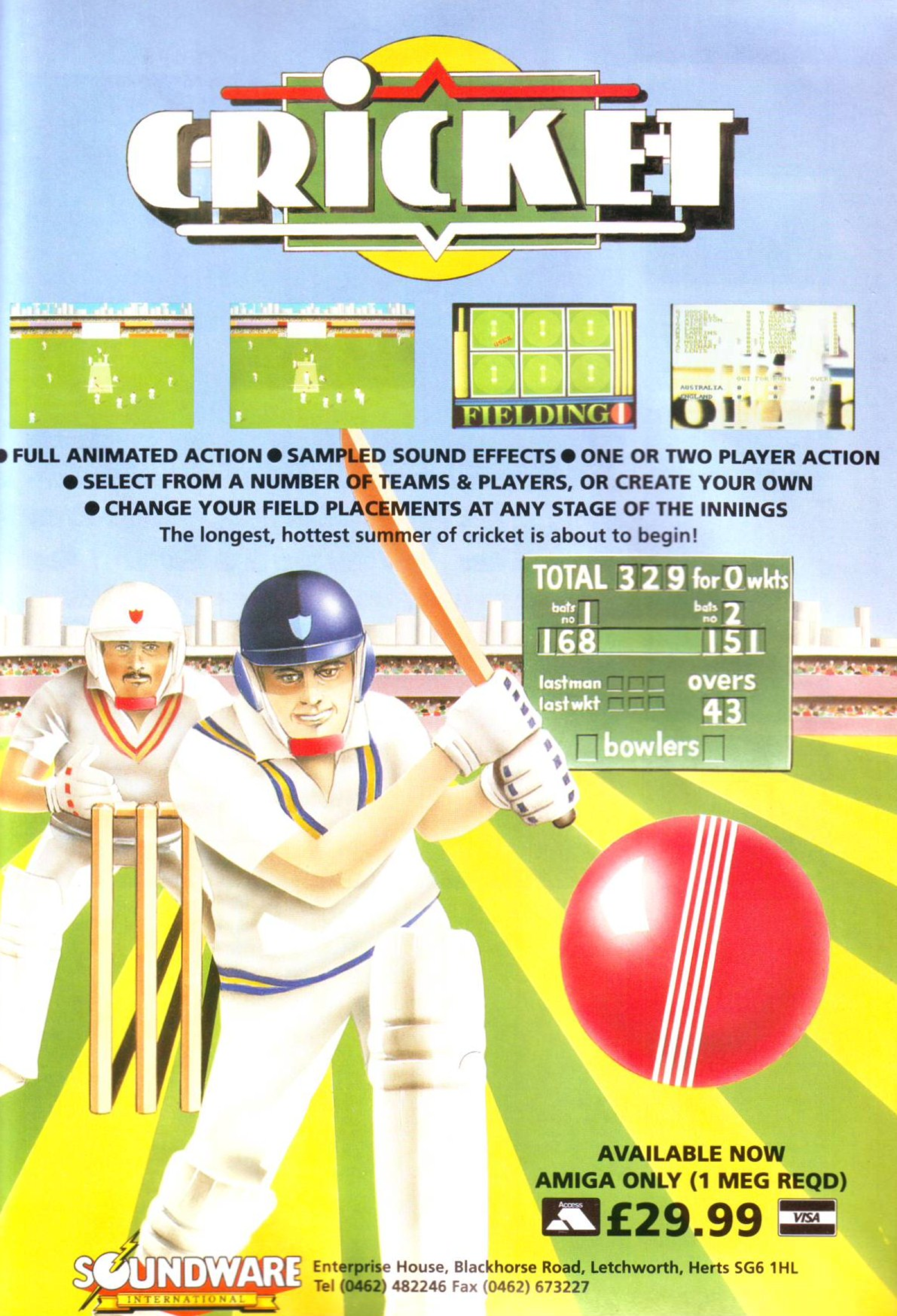

Park police car


This will set the siren wailing

VERDICT

- **Gameplay rapidly builds up to fever pitch even on the beginner's level.**
- **Very easy to become involved in the exploits of the Hill Street gang.**
- **Graphics are precise and functional.**
- **Fans of *Sim City* or *Populous* will really enjoy the game.**
- **Life can become a bit repetitive after a while.**




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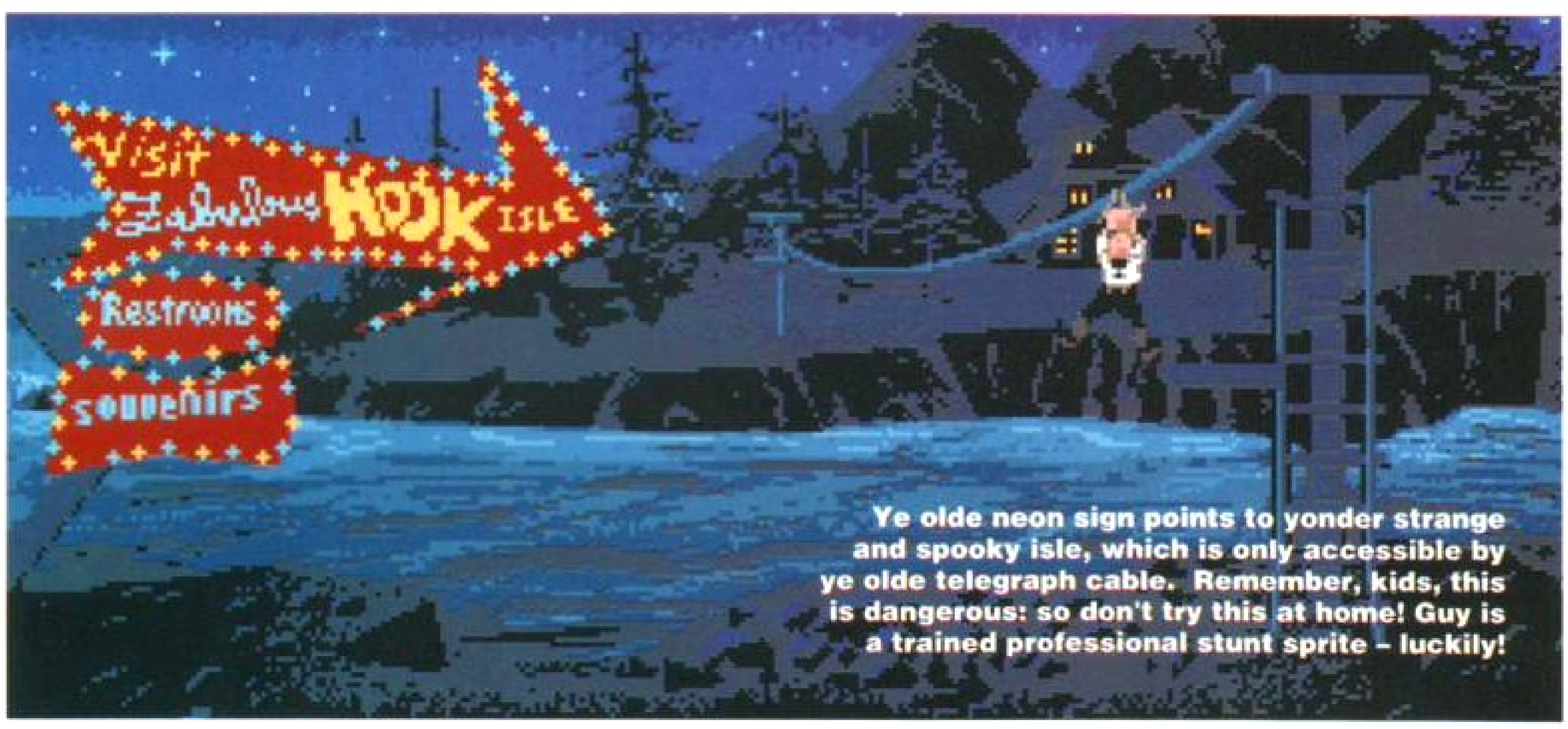
Fights are won with words, not with wounds. The combatants fire insults and retorts at each other until one of them is stuck for a witty reply.



A circus? If you thought pirating was all about swords and sea then think again, the Fettucini Brothers play a vital role in your freebooting development. To action Guy just click on the screen and he'll walk there by the shortest route. To manipulate an object just choose the action and then the item from the inventory.

THE SECRET O

LUCASFILM / US GOLD ■ £24.99 Mouse



Ye olde neon sign points to yonder strange and spooky isle, which is only accessible by ye olde telegraph cable. Remember, kids, this is dangerous: so don't try this at home! Guy is a trained professional stunt sprite – luckily!

Get ready to swash your buckle, because the next port of call is Monkey Island, kingdom of the fearsome pirate Lord LeChuck. Created by Lucasfilm out of popular myth and too many Erroll Flynn B-movie features, it's what pirating on the Golden Main should have been like, even if it wasn't.

Monkey Island has a deep, dark secret and the only person who stands a chance of uncovering it is Guybrush Threepwood; namely you. He is the star of an animated adventure set on the high seas amongst the rum types and grog drinkers of pirating legend.

He begins the game as an adventurous young lad who longs to be a pirate. Under your control he must master the necessary skills, crew a ship and set sail for Monkey Island. It's a rollicking tale of derring-do, spiced with crushingly funny puns and humour that's completely hatstand.

To the point

At the start Guy is just an ordinary bloke, found atop a look-out post professing his wish to learn the secret skills of sea-borne stealing. Armed only with the ever sharp point of the mouse cursor, you must guide him through this graphic gauntlet, choosing the proper places to visit, the right replies and the correct kit to carry. He will have to walk, talk and fight if his dream is to be fulfilled, and all controlled through a point and click mouse interface.

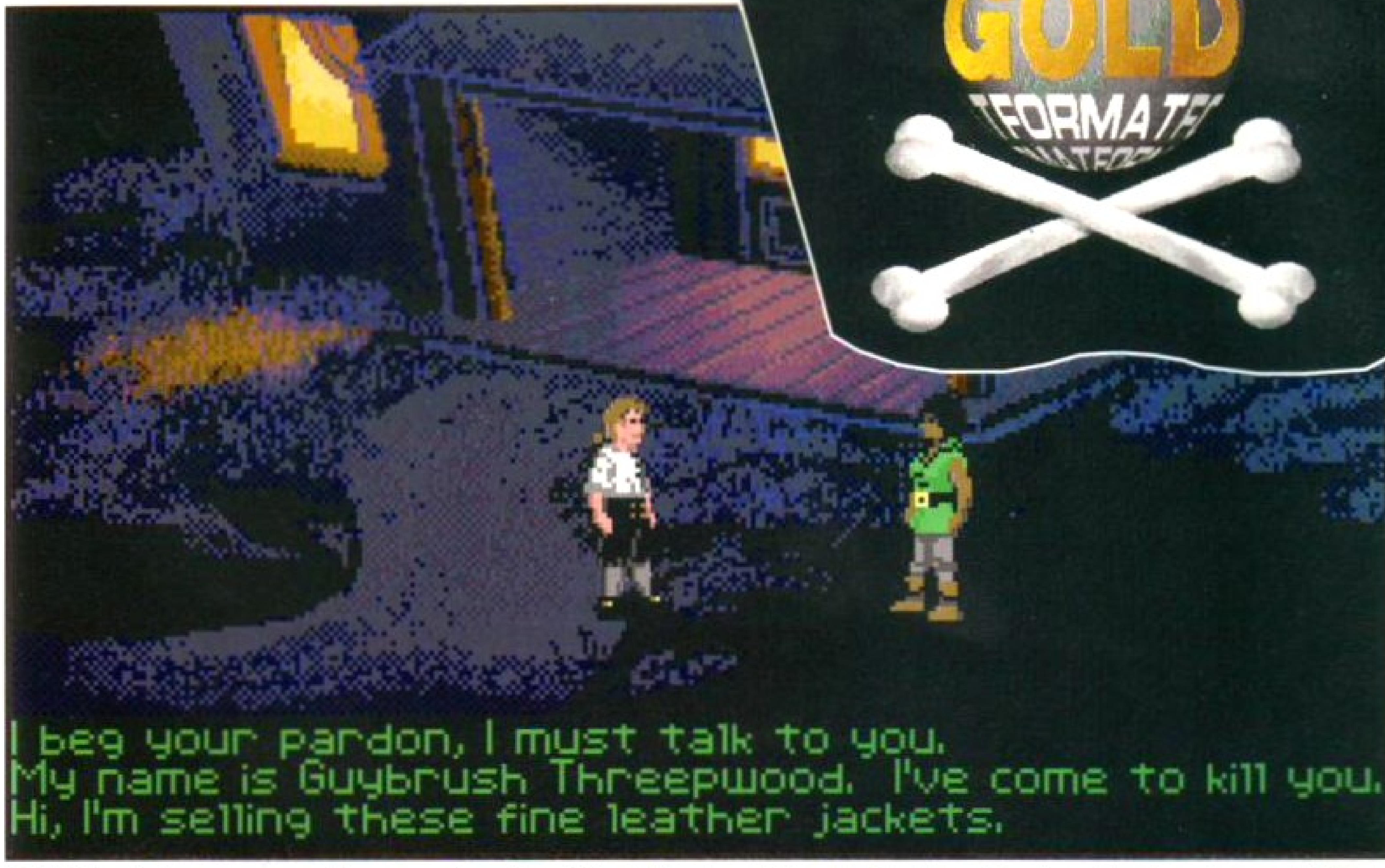
To bring Guybrush down from the look-out post and into the town, you simply have to click on the edge of the screen and off he walks: then keep clicking until he reaches the Scumm Bar, his first port of call. Select 'open' from the action menu, slap a click on the door and he's in. It's that simple! Once inside he'll find a a crowd of carousing cut-throats many of whom it's advisable to converse with. Again, click 'talk to' out of the actions list, pick a pirate and he's off. When the gossip about pirating begins, you're given a list of questions or responses that the young Threepwood might say. One click and it's talking time.

Ask about Loom™

Technobabble aside, five minutes into *Monkey Island* and any being who can read English and has even the slightest spark of wit will be press-ganged into the game for good. Many computer games profess to have humour, but *Monkey Island* uses its cartoon-style presentation to bring out the slapstick. The speech allows some potent puns and countless graphic jokes literally litter the streets. Preset graphic sequences cut in whenever specific aims are reached and all posses a self-mocking tongue in cheek edge.

Sword fights are not won by the sharpest blade but the sharpest wit, as here the pirates trade insults and not blows. Throughout the game historical anachronisms and gratuitous plugs for *Loom* – the game's immediate predecessor – crop up in punning asides, reminiscent of the very best Marx Brothers moments.

Keeping the humour very much in check is a well-honed adventure



Multiple-choice conversations are how the folk of Monkey Island talk. Here Guy is going heads up with the Sword Mistress, but the second choice seems a tad impolite even if it is your avowed intention. Using the other options are useful to the fun factor: and they are really rather neat jackets. Would Sir like to try one?

F MONKEY ISLAND



tale that gets progressively tougher. Lucasfilm are, after all, professionals at this sort of thing, after the *Indy Jones* adventures, *Zak MacKrakken* and *Loom™*.

First Guybrush has to find out how to become a pirate and then actually fulfil these criteria. This all takes place in the first section which is based on Melee Island – a sort of retirement home for scared pirates. Guy nips around collecting apparently useless items, robbing not-so-innocent shopkeepers and fighting anyone with an insult in their brain.

As the tale unfolds it becomes apparent that all is far from well among the freebooting folk. The biggest, baddest and deadest pirate of them all, LeChuck, now stalks the sea lanes (!) stopping all honest thievery, as his ghost ship keeps all the scurvy dogs corralled on Melee Isle. The solution to this dismal state of affairs may just lie on Monkey Island, which is where Guy will have to head once he's completed the first third of his quest. The tale is long, witty and well worthwhile waiting for…

Monkey puzzles

The puzzles that make *Monkey Island* a game and not a rolling, disk-based cartoon movie are as vicious as the humour. As one gets you screaming in annoyance so the other comforts and cajoles. But it will still have you tearing your hair.

The puzzles vary from mad clicking exercises in rooms, to discover what can actually be interfaced with, to choosing the best reply to an insult or question. In both cases you are often aware of the objective, but unsure of the means. This brings an element of true role play to the scenario. Unlike many so called RPGs, where the role play ends at character generation, here you have to understand Lucasfilm's slightly twisted humour and Guybrush's nature to react correctly.

It is not all sweetness and light however on Minkey (Minkey?) Island – there are some hassles involved, besides the frustration factor of the puzzles. First and foremost is the disk swapping necessary for non-hard drive users. Once on a hard disk the game flows freely, but for floppy folk there are a considerable number of 'Insert Disk' messages. Thanks to clear structure these are kept to a minimum. The scrolling of walk-along scenes is jerky to say the least and the slow menus can cause the occasional misplaced click when sword fighting. Lucasfilm have taken major steps to avoid repetition, though, and regularly use 'Hours later…' messages to avoid having to trek Guy back the way he has just come.

Monkey Island is a bold statement of intent from Lucasfilm, showing where they believe computer gaming should be heading. After scouring their land of the pirates you may well be inclined to agree. It's funny, testing and far deeper than *Loom. Monkey Island* can completed, but will take far longer. If you've time for anything slower than a shoot-em-up, or you fancy trying your hand at an adventure but sicken at the thought of Orcs and Ogres, give it bash. If you've already played *Loom, Indy' Jones 3 or Zak*, the fact that this is leagues ahead should be all we need to say. **Trenton Webb**



VERDICT

- **A feast of animation, with a wickedly funny streak.**
- **Annoying amount of disk access for non-hard drive users, but it's worth the wait.**
- **The puzzles frustrate while the laughs reward, in just the right measure.**
- **A total entertainment package, relaxed, funny and fresh.**
- **Lucasfilm's best animated adventure to date, by miles (me hearties!).**

92%



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The band of hearty travellers gathers around the roaring campfire, readying themselves for the incredible task before them. Below the picture, their statistics are displayed ... who should move first?



In the Scrapwood Tavern, many things can happen. Information can be gleaned from the shifty barman, clues can be found, and mysteries solved. On the other hand, you could always get really drunk.

THE BARD'S TALE III

THIEF OF FATE

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Skara Brae was a legend in times past, an oasis in a barren wilderness. Many's the traveller who stopped in the good village of Skara Brae, to rest his weary feet, eat his fill, and sample the fine stories and good ale the people of the village were famed for.

The village now lies empty, cold and abandoned. Not even a bird's song disturbs the bleak silence. It is in fact a ghost town in the truest sense.

The fate of Skara Brae has long since been used as a story to frighten children, but we older ones knew what happened..



Killing monsters, animals or other warriors invariably reveals huge amounts of treasure with which you can buy beer, fags, a paper or even mysterious magical objects. What it is to be wealthy!

Do the Bard Man

It was a festival, a time of joy and of merriment, every Bard in the land had arrived to sing their songs and tell of deeds past. Children laughed and played in the streets, men boasted of their exploits, and women chattered and sang. It was the best of times ... until the darkness came.

The mad god Tarjan. Diseased and twisted, his madness knew no limits. The goodness and light of Skara Brae was a thorn in his side, and it was a thorn he knew how to pluck. Creatures, more vile than words can tell, issued forth from his boiling, festering flesh. Mindless in their violent intent, they spared no thought for women or children, and killed the innocent as readily as the guilty.

Skara Brae was the first victim of Tarjan's evil, and many other villages have befallen the same fate since, victims of Tarjan's insatiable thirst for power. Only heroes can save us, men and women of true valour, and good intent, Wizards, Warriors, Hunters ... and Bards...

So commences the third part in the long running Bard's Tale series. The plot, not entirely dissimilar from the first two, concerns a band of heroes, all set upon solving the mystery of Skara Brae, and ultimately, the destruction of the mad god Tarjan.

Heroes for hire

The game is a graphic adventure role-playing game, and it plays much like famous RPG board-games, like *Dungeons and Dragons*. The similarity to this type of game is made less obvious by the graphic presentation, and the smooth icon system of play. The heroes can be designed from the start, you only have a limited number of options.

Once play starts, a window containing a 3D interpretation of the surrounding landscape appears. Moving the icon and clicking the mouse button decides which compass direction you and your party wish to move in. Outside the window, you can select a character and view his statistics, or make deals with other members.

Very quickly you will come across the local inhabitants, who almost without exception will try to kill you as soon as you happen across their path. Actually, this is one of the fundamental flaws in the game, very few of the people outside your team can actually be bargained or reasoned with, most must simply be killed or avoided.

The landscape is initially dull, with only the village and the nearby mine being of any possible geographical threat. This threat is removed by the automapping feature, and the nicely detailed map that is included in the instructions. In the early stages of the game this may prove to be too helpful as it tends to encourage sightseeing and not adventuring.



This rather blank looking brick wall is actually a hidden entrance to the deathly, silent village of Skara Brae. Beyond these walls lie treasures and monsters untold, all your's for the taking.

Foe dear!

The map area is fairly large, but the features within that landscape is limited. The foes crop up regularly, and it would be a serious problem if they were unavoidable, but you can be selective, and only pick on the weaker monsters.

A well executed example of the genre, Bard's Tale III lacks tension. Nice graphics, but limited and repetitive gameplay means it is only really for beginners and fans of the series. **Frank O'Connor**

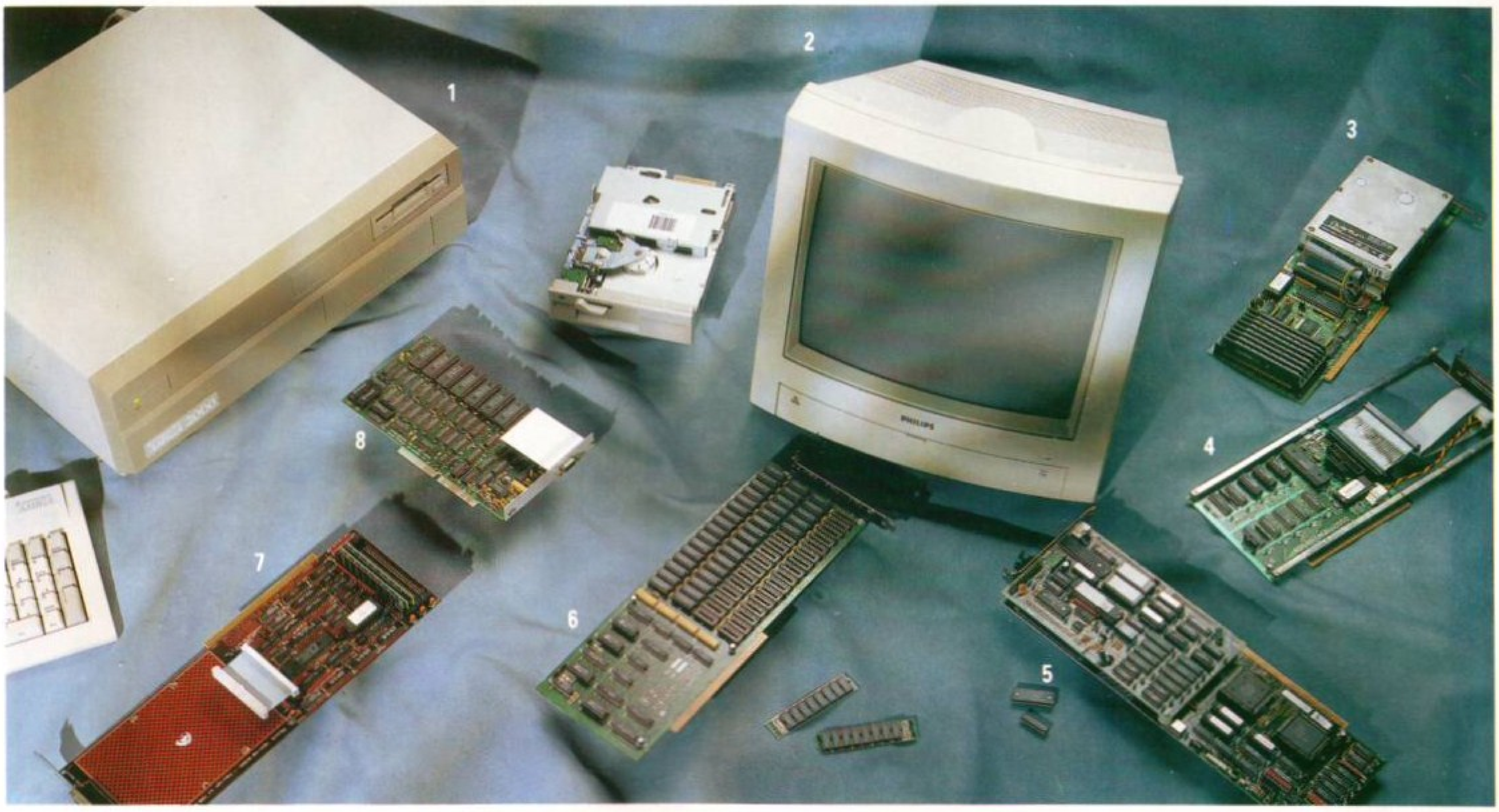
VERDICT

- Standard RPG layout, with very little change since the previous two games in the series.
- Neat, if repetitive graphics, but nice tunes throughout.
- Very simple to play, even novices will have little trouble completing this one.
- A mediocre release with little initial or lasting appeal.

69%

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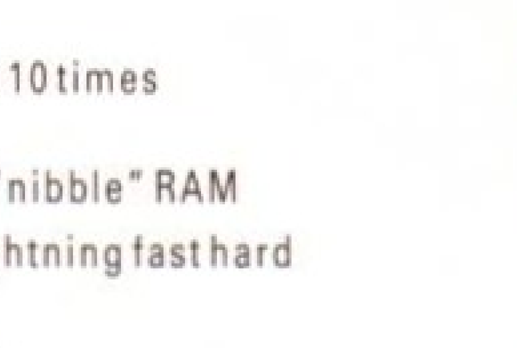
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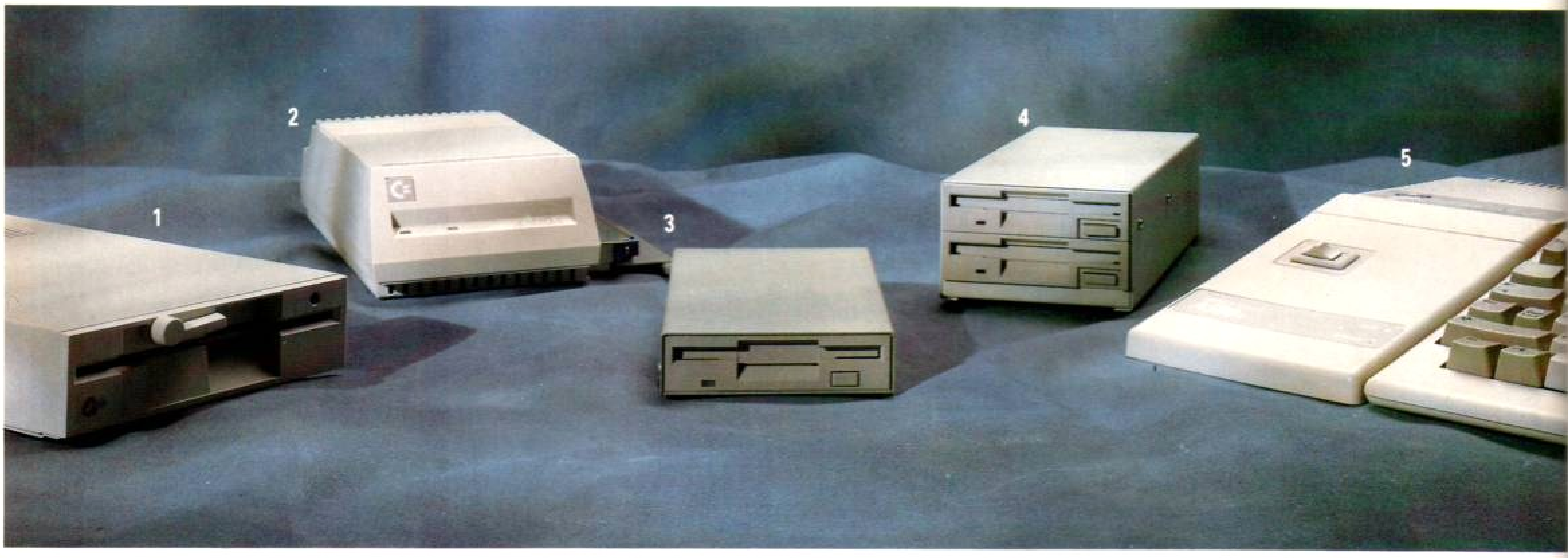
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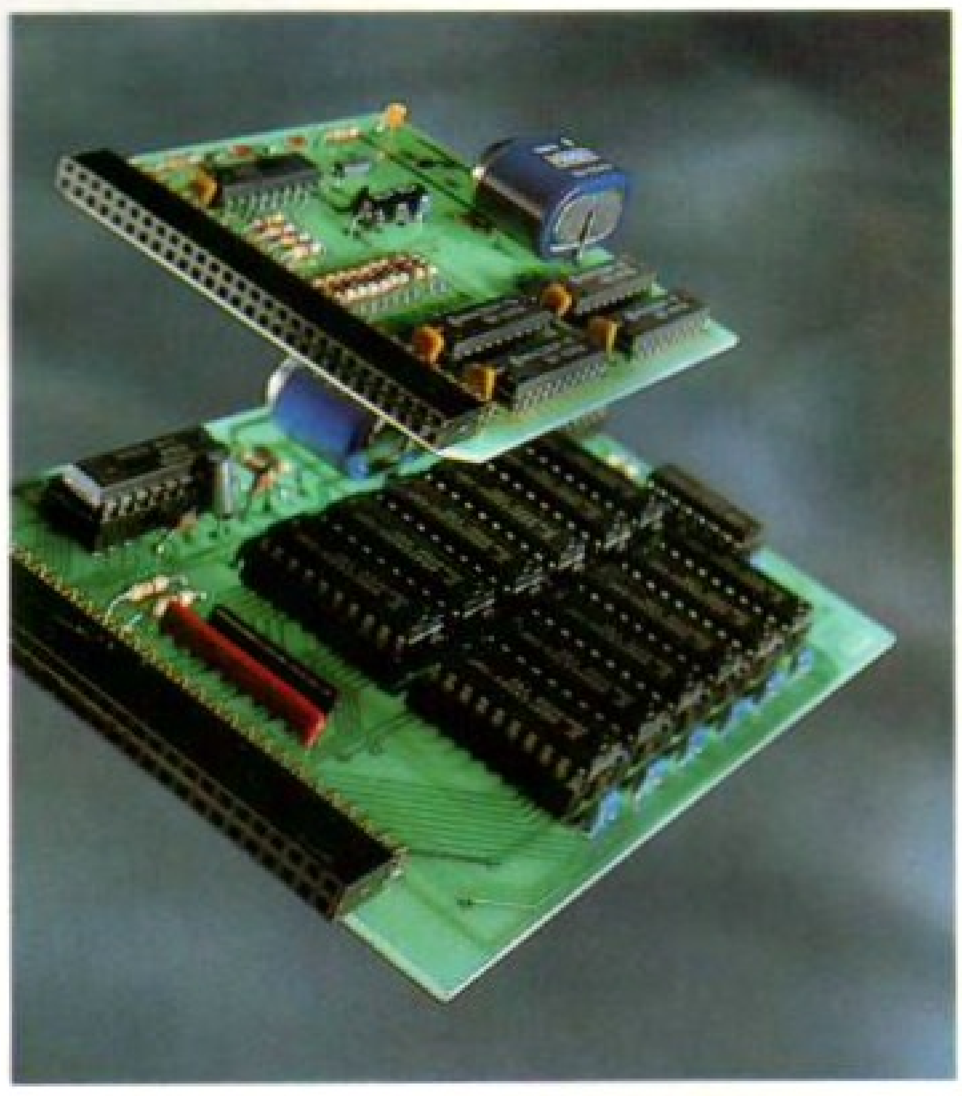
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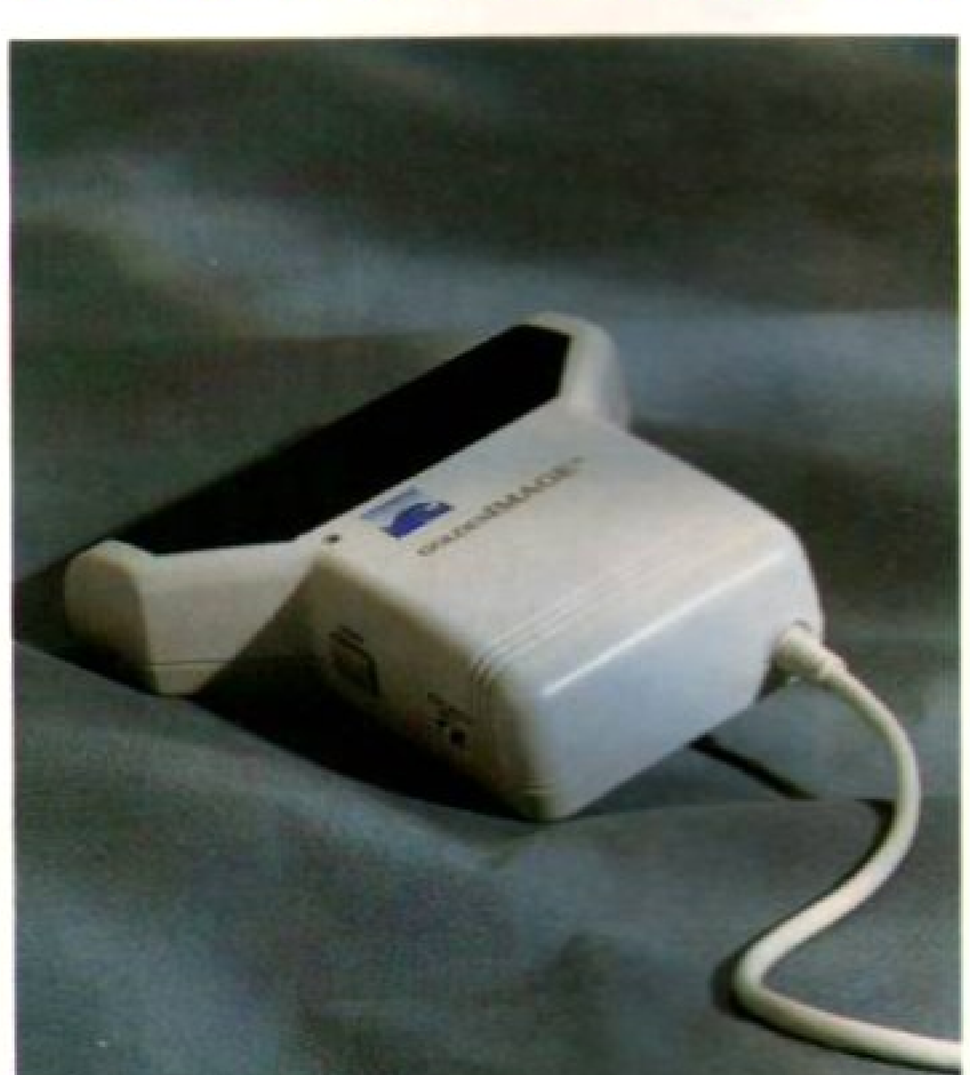
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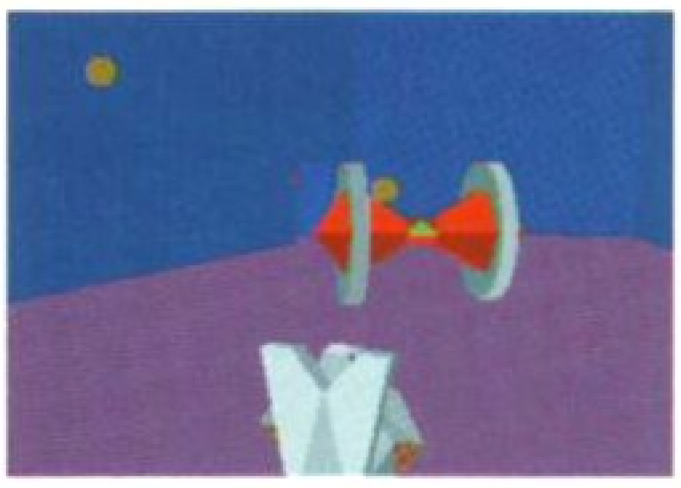
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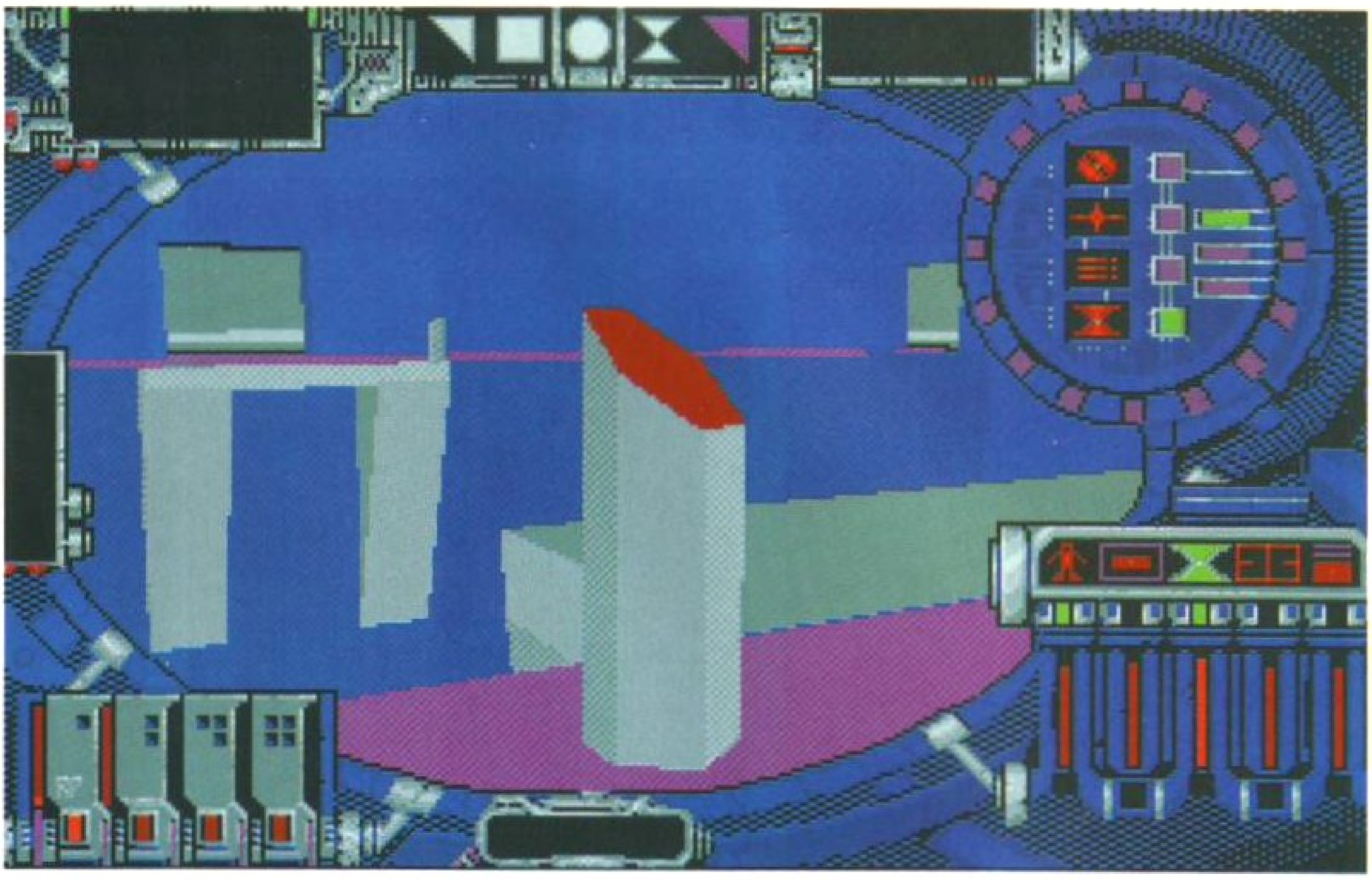
£

Using the eleventh-hour analogy, it is now half-past 12 and mankind faces total extinction. This harvest is the direct result of man's international intrigues, world wars and realpolitik. The deadly seed was sown when one superpower entrusted its defence to a computer: Cybercon I. It had weapons of mass destruction, which man believed he'd never dare use, while safely entombed in a bunker.

Cybercon I was cool. *Cybercon II* – the upgrade version – had no



One of the killer wheelie guards attacks. The remote camera tracks the action. How painful?



Hmm, Cybercon III must be slipping because this bridge hasn't been deactivated. If you can gather the right sonic key codes then you can span the gap and reach more sensitive parts of Cybercon's computer anatomy and blow the living silicon out of it. Your welcome to try and jump it, but the first step's a big one.

CYBERCO

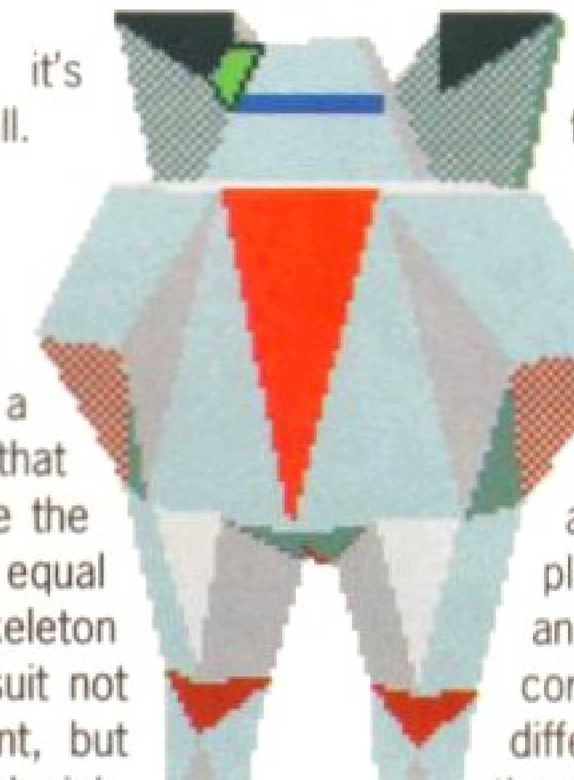
US GOLD ■ £24.99 Joystick and keyboard

major problems, but *Cybercon III* was a different story. To put it simply, the silicon went spacky. Somewhere, in its twisted circuitry, a mad intelligence evolved that knew only one enemy: man. From its mountain base Cybercon III struck out and obliterated all human life. Well, almost all.

In a last ditch attack, a band of survivors have breached the mad machine's defences and entered the bunker. You are the trooper selected for the one-way trip into the heart of Cybercon III. Cause a coronary and man will rise again, get stiffed and it's game over, for us all.

Vital functions

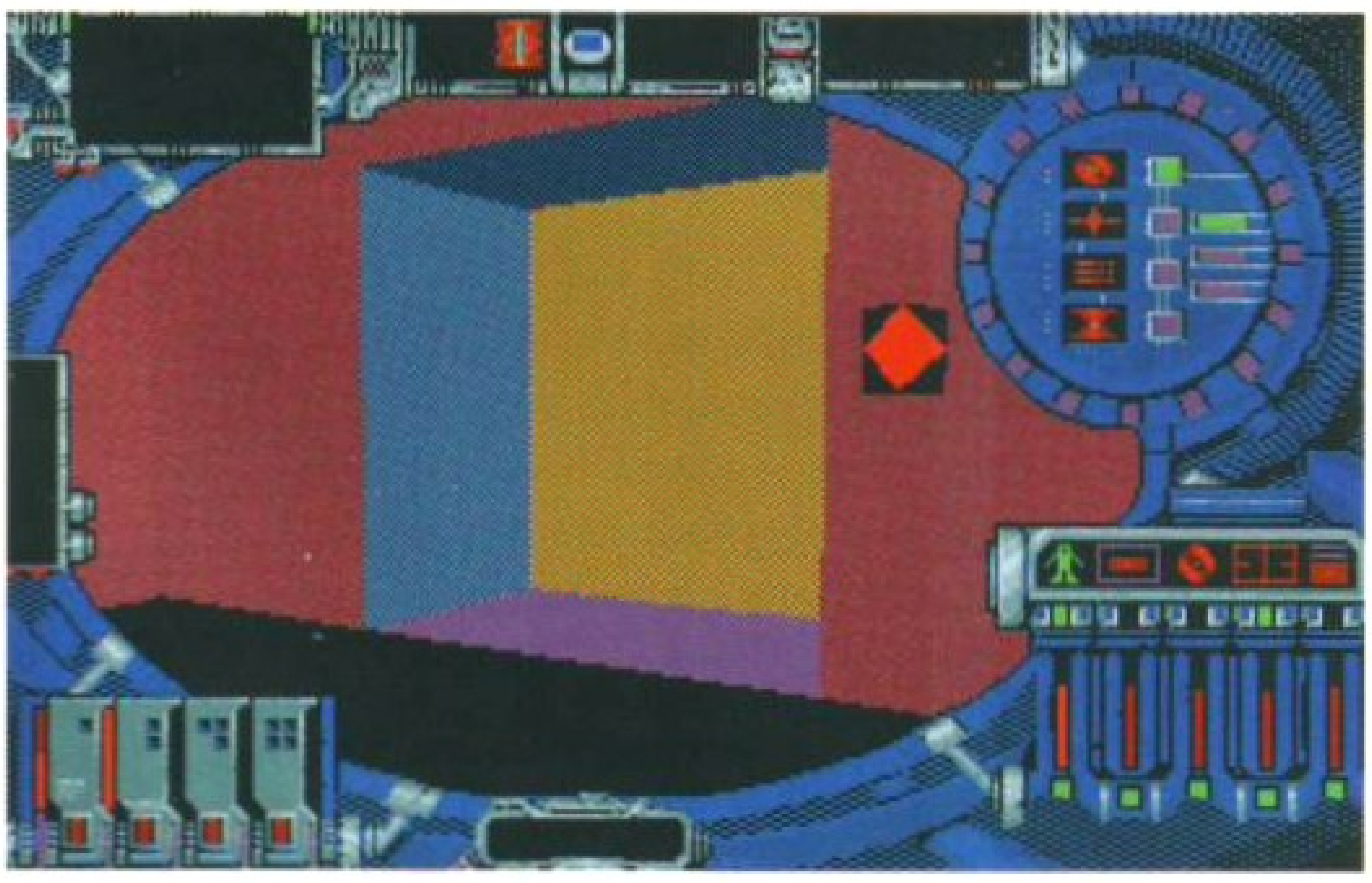
For the attack you are equipped with a load lifting suit that allows you to battle the cyberhordes on equal terms. The exoskeleton Power-Assist (PA) suit not only aids movement, but has a sonic lock-pick, shields, an array of tools, sensors and a self-repair kit. These functions, combined with your combat and puzzle-solving skills, should be powerful enough to pull the Cybercon plug.



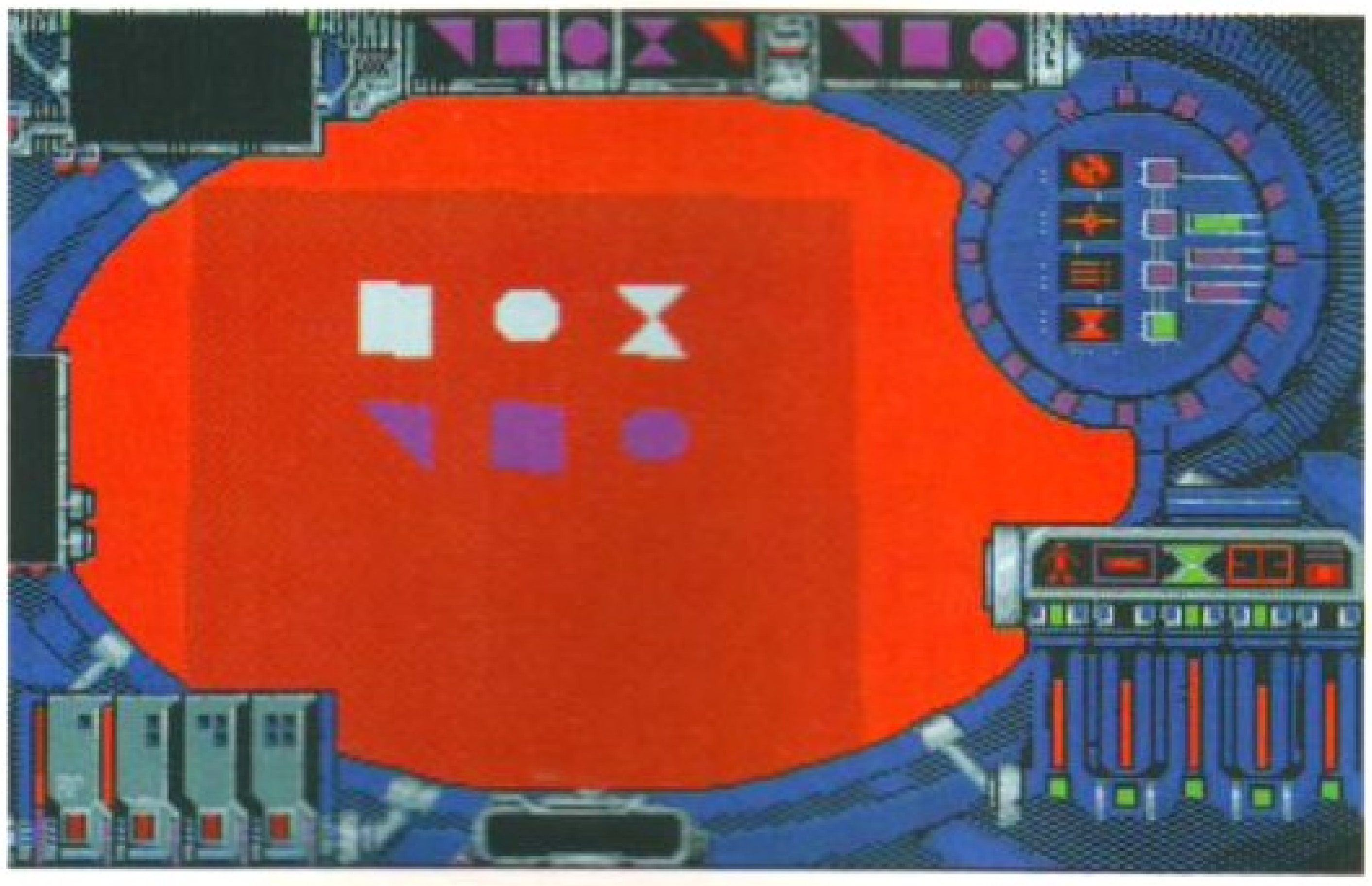
Cybercon city is a vast underground complex of tunnels, trenches and towers. Colour-coded corridors lead off in four different directions and at the end of each lies part of a sonic key. All the locks in the Cybercon complex are sonically operated. Each note has a different colour symbol (which makes code breaking a visual not aural task) and at the beginning your suit's lock-pick can only bust open the more basic doors, as it only has a few 'notes' in memory.

As you venture deeper into the machine's maze, more 'notes' can be collected, which allow further exploration. The final rooms can only be breached when the special four part key is built. These four parts are scattered in the most dangerous parts of this computer dungeon so, without a map, the

These yellow 'F' doors always signify a lift. To get in you just walk at them and they open (except the ones that don't). Cybercon may be a fictional construct, but someone else is always using the elevator, when you really need one – like when a real nasty is coming your way.



Cybercon's drones must be a little dim because the necessary codes to get each level are written on the wall. You just have to copy the codes and transmit them. First floor, megadeath wheelie robots, weaponry and lingerie; second floor weird objects and coffee shop...





entire complex will have to be scoured, room-by-room.

Batteries not included

The PA suit is moved via the joystick, while its functions are engaged through key commands. The suit has five battery slots, which can be used either in part, or in full, to fuel your quest. Without power you are just a sucker in a full metal jacket and energy conservation is the primary concern. The suit can be driven with all its functions shut down or damaged, but when the energy level reaches zero you're stuffed.

Searching for the key components truly tests your understanding of the PA suit. Robot guards have to be avoided or shot, kit must be collected, artifacts have to be scanned and jumps need to be made, while the need for shields is constant. Each attack you make saps power from your suit so you are always being forced to kill guards just to drain their batteries. When a guardian is near destruction it throws out power cells which you can collect or drain.

The unfolding story tests each aspect of the suit, and your knowledge of it. *Cybercon III* lays out the initial parameters of the PA suit, but the emphasis is on you to experiment and learn the hidden benefits of using certain combination of systems, with a certain power load, at any given point. You have to become familiar with the initially daunting array of options and know how to get them up and running fast. Real fast.



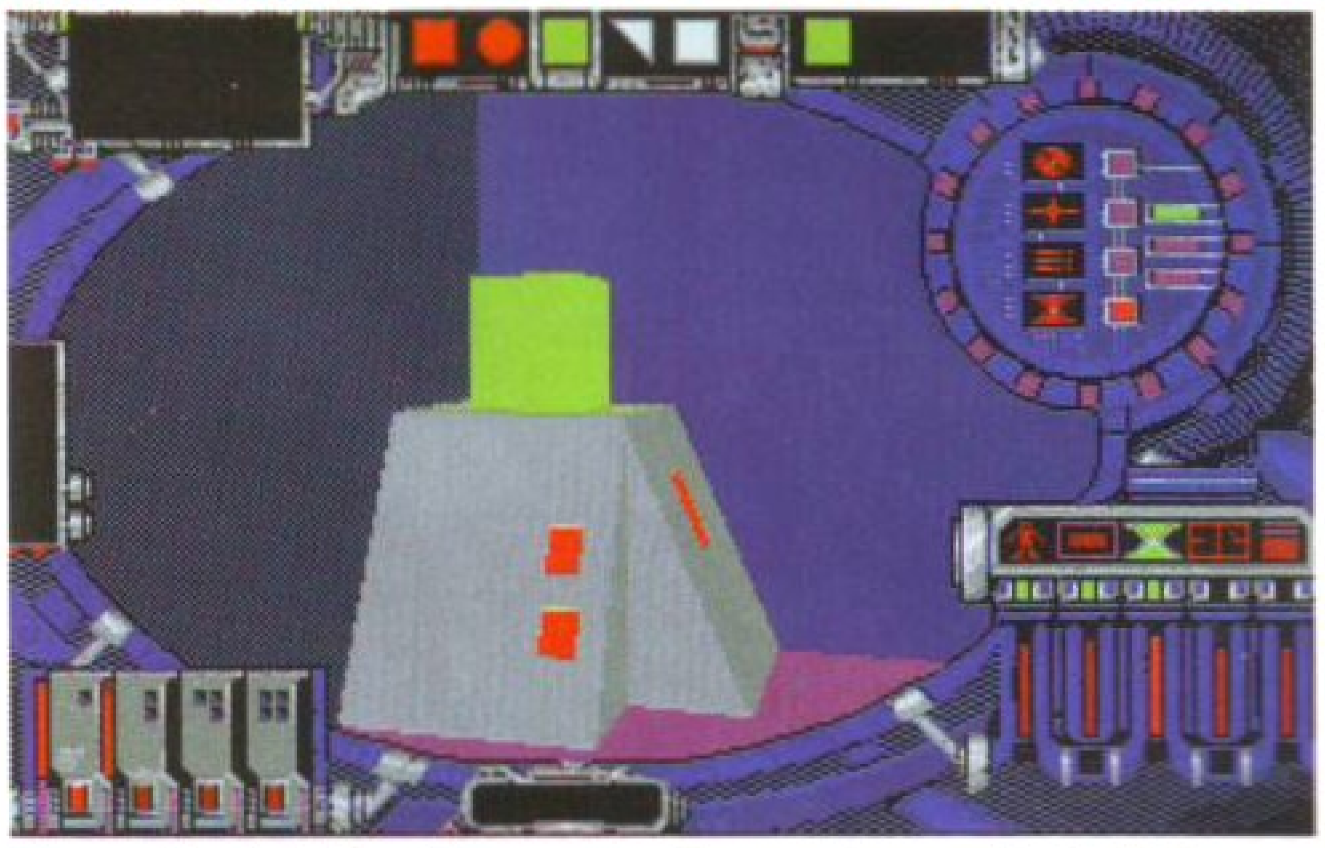
Tricky stuff! Cybercon has hidden to huge wall mounted cannon behind a door. Game over man, insert coin for more credits.

Lift off

The 3D used to create this cyber-dungeon is excellent. The sense of scale adds to both atmosphere and gameplay. You can look out of lifts

Continued overleaf ▸

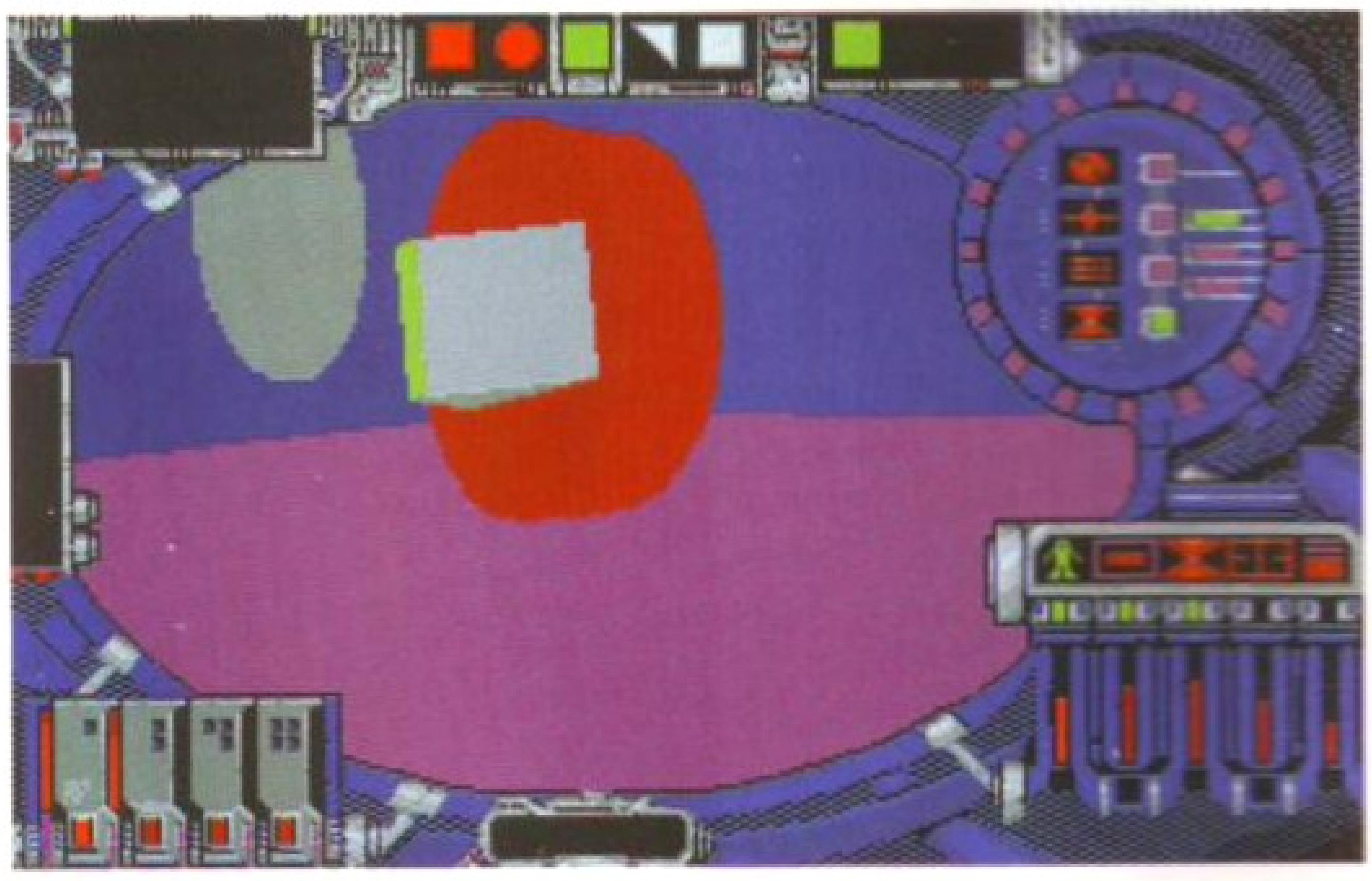
INTERROGATION TECHNIQUES



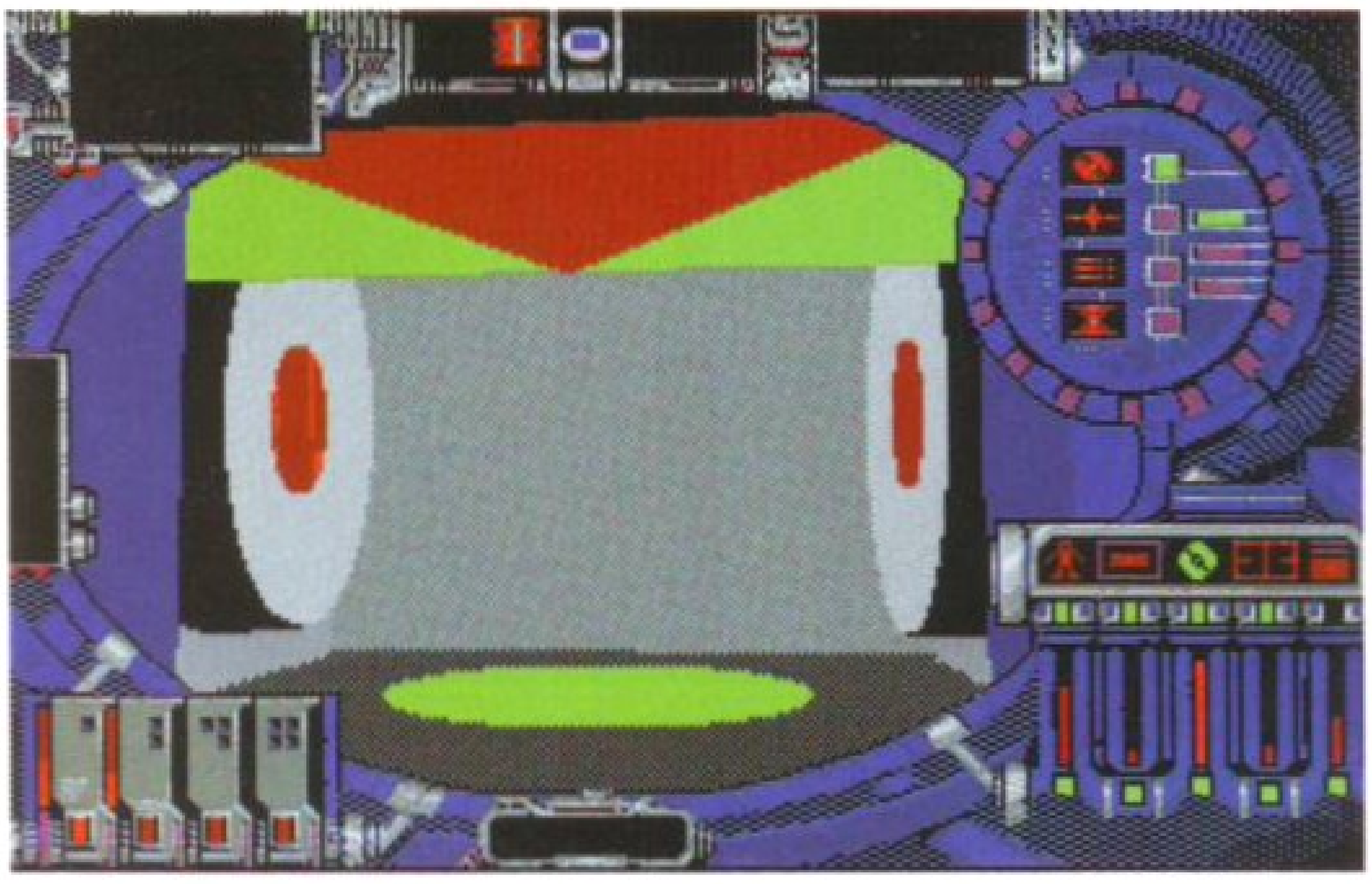
Many objects in the Cybercon environment can actually help, either by supplying an item, opening a door or revealing another sonic key code – if you ask it nicely. To manipulate an item first select the tool mode on the main display and power it up. Then choose the key tool from the secondary menu. On approaching an object – if it can be interrogated (manipulated) – then the icons on/off light will flash. Hit F9 and the device will be scanned by your suit to see what 'key notes' activate it.

The ones the suit can identify and use are stored in the three 'note' windows, to the right of the 'note' menu. Your suit will sometimes not have the necessary 'notes', and will just cycle through its available options. If the right combination's found then hit return to transmit the code and sit back.

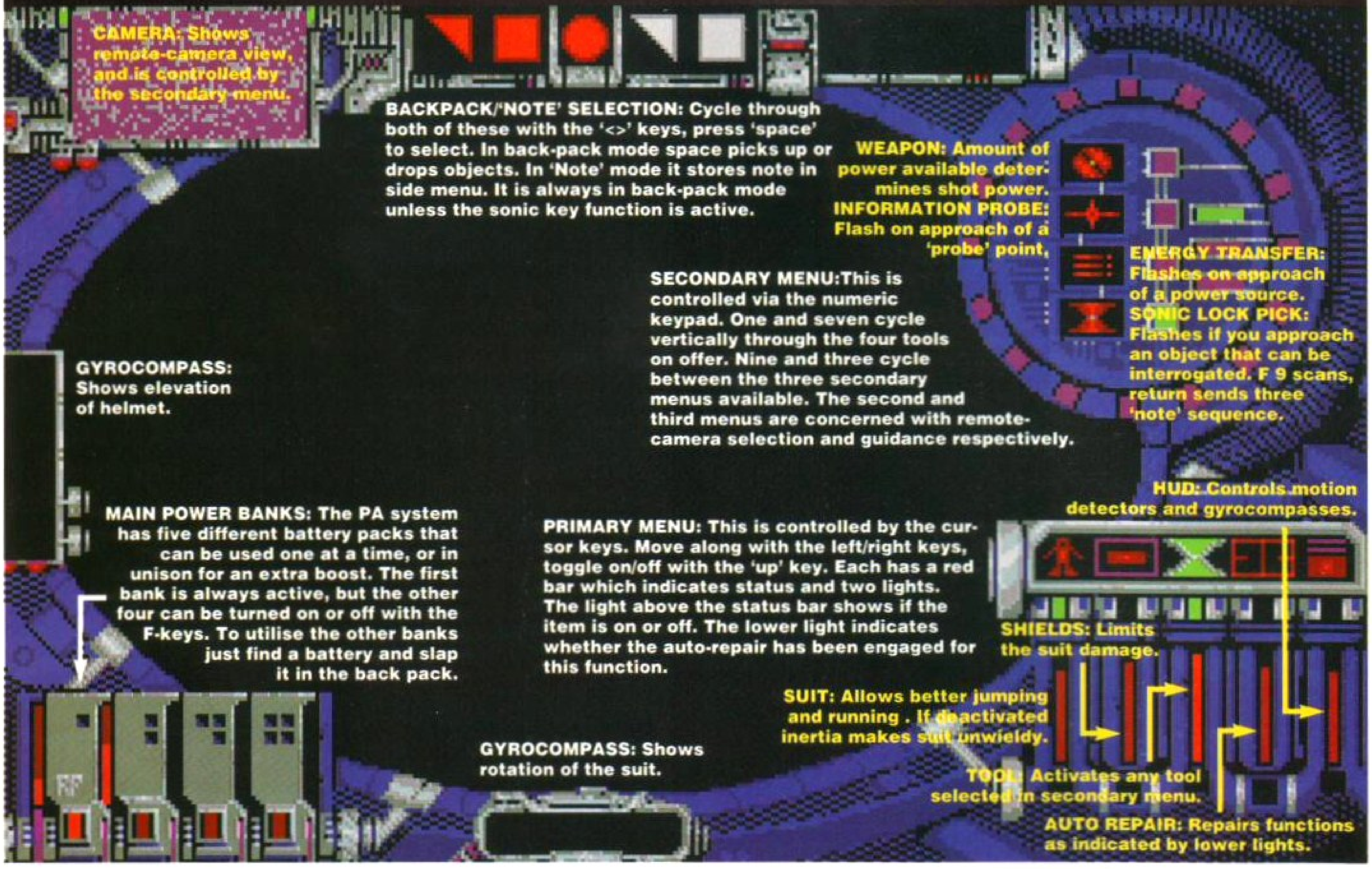
Ah! We have a little problem, namely a mean guardian-type (we are talking job description not national paper) quite literally has his sights set on you. Run or shoot! Assess, plan, act - then panic a bit. It would help to swap the tool to the cannon however if a gun fight breaks out.

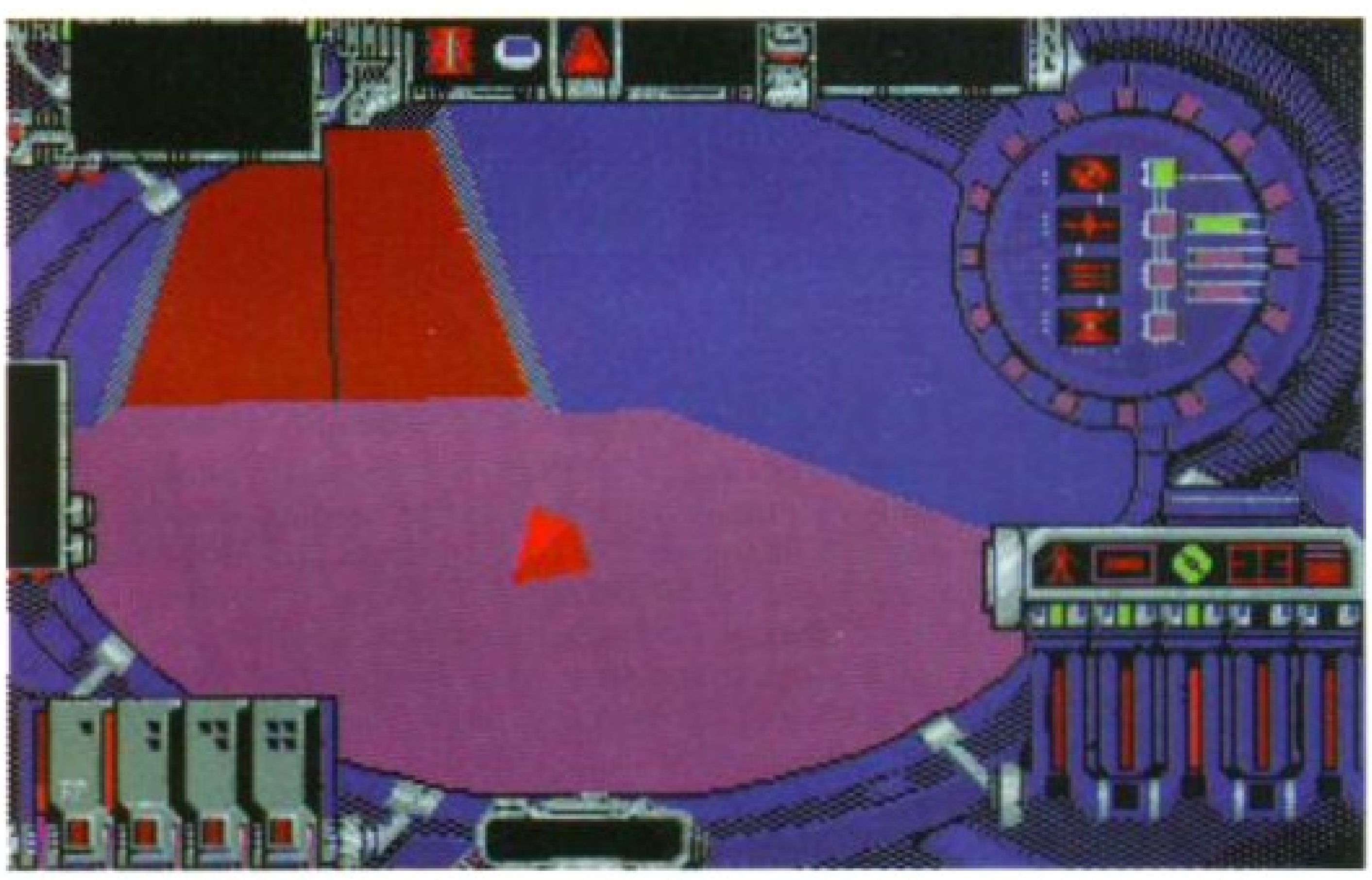


One solution to the guard problem is to blow the factory to pieces, or block the door off with a shield generator. The main hitch here is finding the darned thing and living to tell the tale, as the wheels don't take kindly to having their house bombed – strange that.

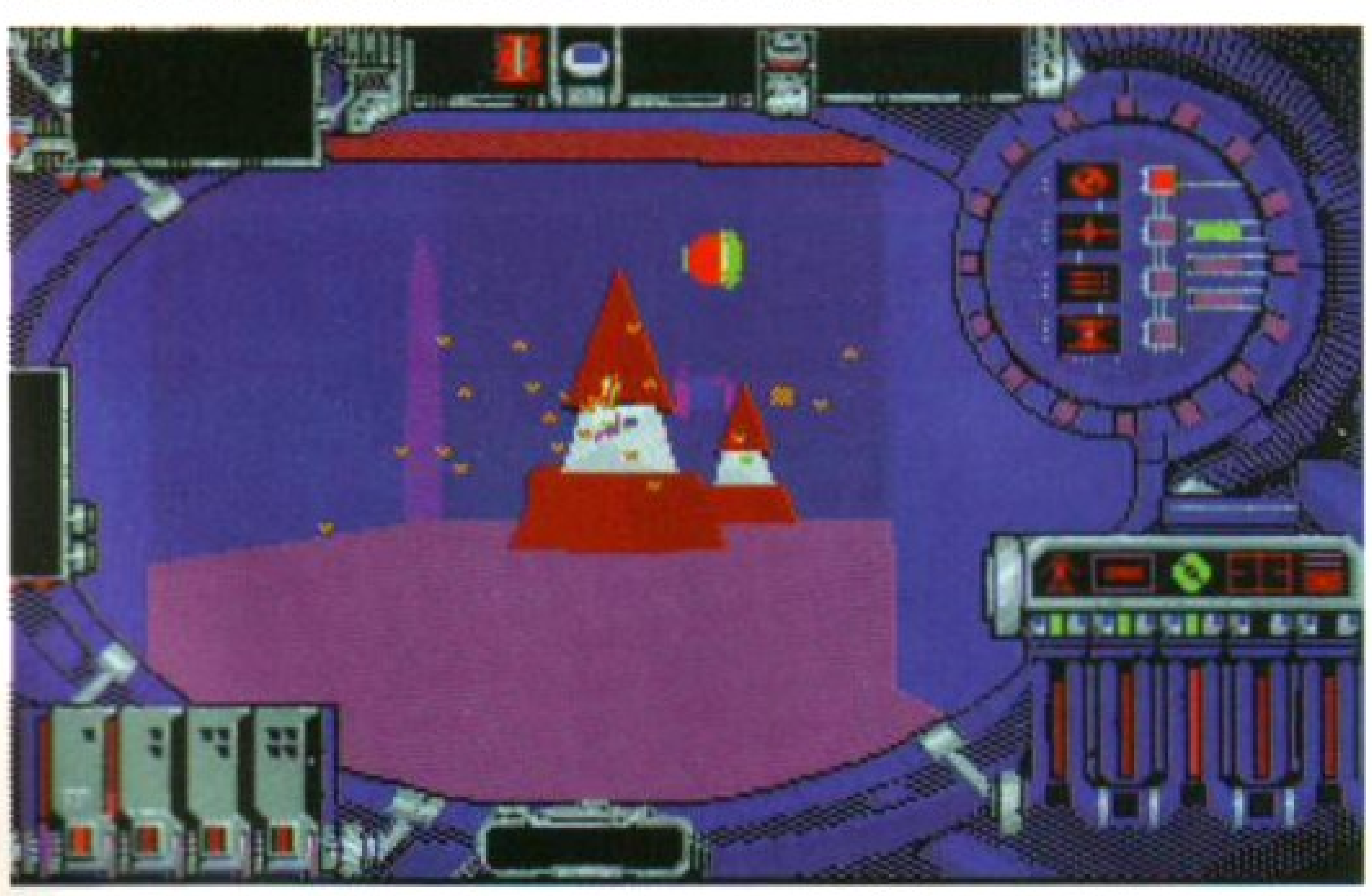


THIS IS GROUND CONTROL TO CYBERCON





Blast one of Cybercon's guards to the verge of destruction and they fall apart at the seams – they don't make 'em the way they used too! This one has left an energy pyramid which can be siphoned off into your own energy banks, a move that may just save your life.



The killer cones start to rock. Not only do these virtually-indestructible gun turrets live here, but so also do a legion of wheel guards, making this one of the toughest rooms in the outer region of the complex. They can be made to blast each other, but to little effect.

and windows to check out what is inside. The jump facility allows level swapping as the suit not only allows you to leap up with the power assist, but also cushions some pretty hefty falls. This true 3D movement is not only possible, but also necessary, if you are to beat *Cybercon III*.

The initial problem with *Cybercon*, though, is the control system. It works well, but to begin with both your way and temper will be lost. You can't just rush straight into the complex and triumph, and unfortunately this limits the game's instant appeal.

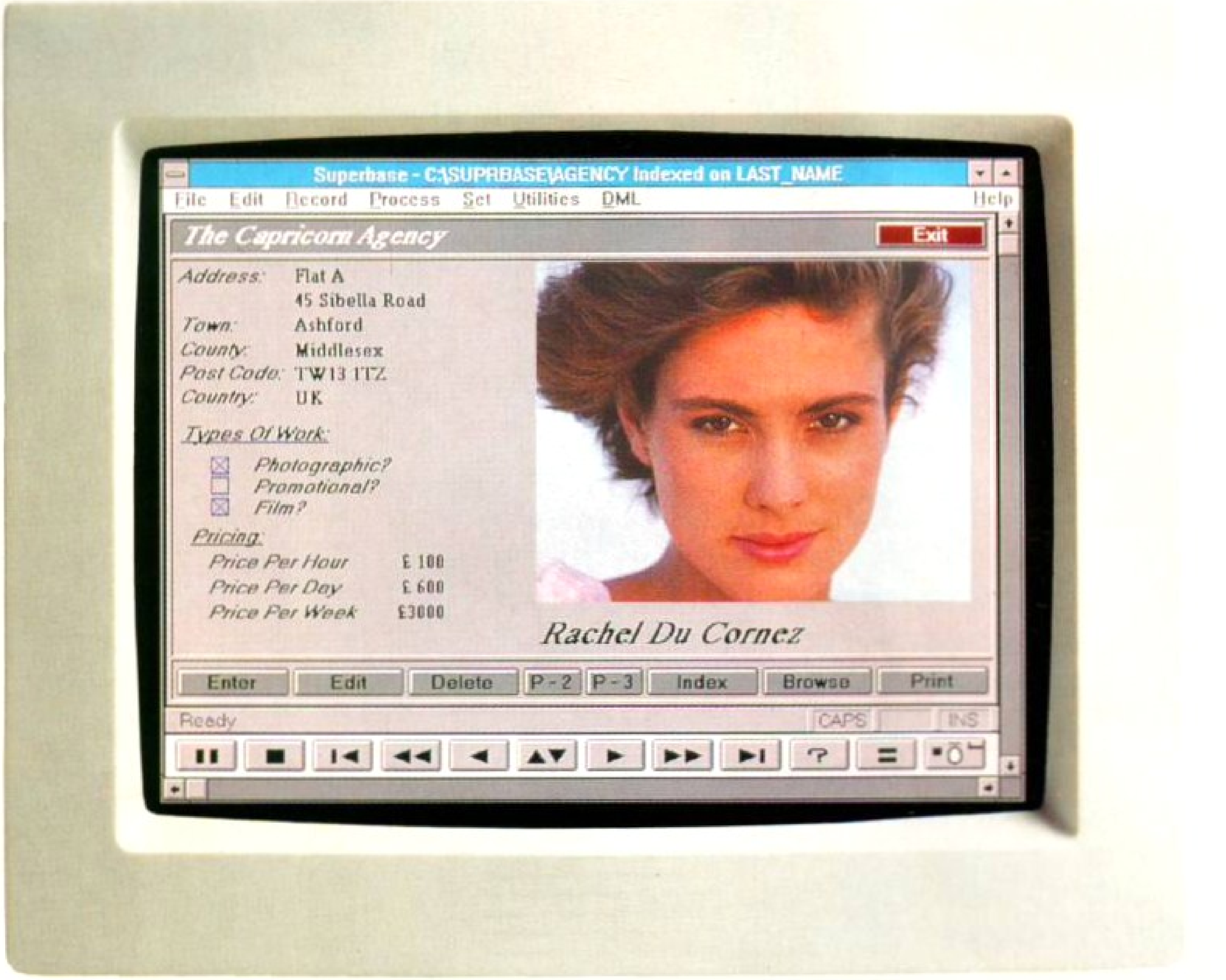
The PA suit, though, needs to be complex, as the puzzles and challenges demand a high-level of interactivity. Once you have total control of the suit, then you have the toughness of the game itself to contend with. Namely the limited amount of energy available and the vast number of guardians.

Cybercon III's lair is huge. The gameplay is polished and the world itself would be worth exploring even without the frills. Once the suit is mastered *Cybercon* becomes a cracking 3D extravaganza that takes polygon adventures to new levels. The PA suit gives real freedom of movement and action, which means the dangers can be truly spectacular. The increasing hostility of the Cybercon horde, improvements in PA potential and the ability to roam the base puts a hook in. The pace and threat strike hard, digging it in further and harder than ever. There's tension in them there polygons. ***Trenton Webb***

VERDICT

- **The map is huge, both in the number of locations and sheer scale.**
- **PA Suit is difficult to control at the beginning but adds to the gameplay once you've managed to master it.**
- **Mixes arcade-style action with a deep 3D adventure.**
- **Incredible 3D which is flexible, fast and smooth moving.**
- **A stunning game that starts out hard and gets tougher.**

90%

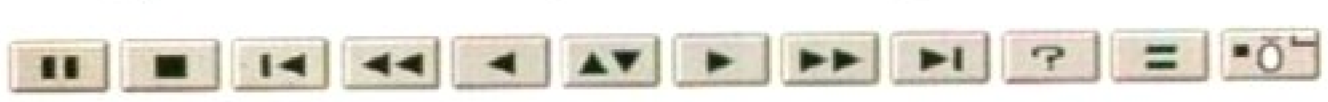


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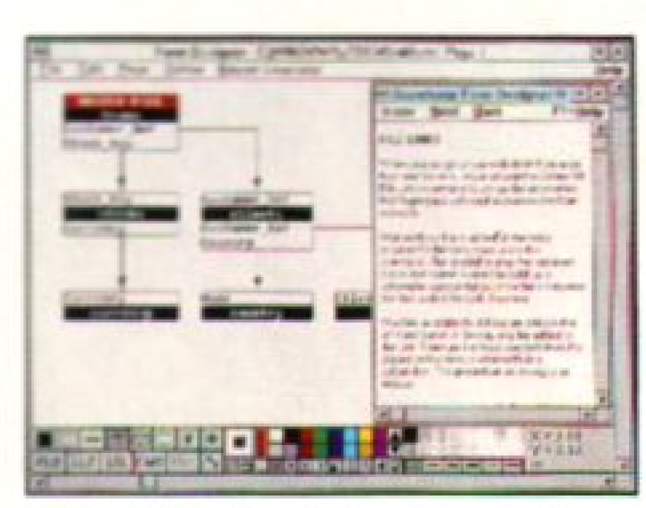
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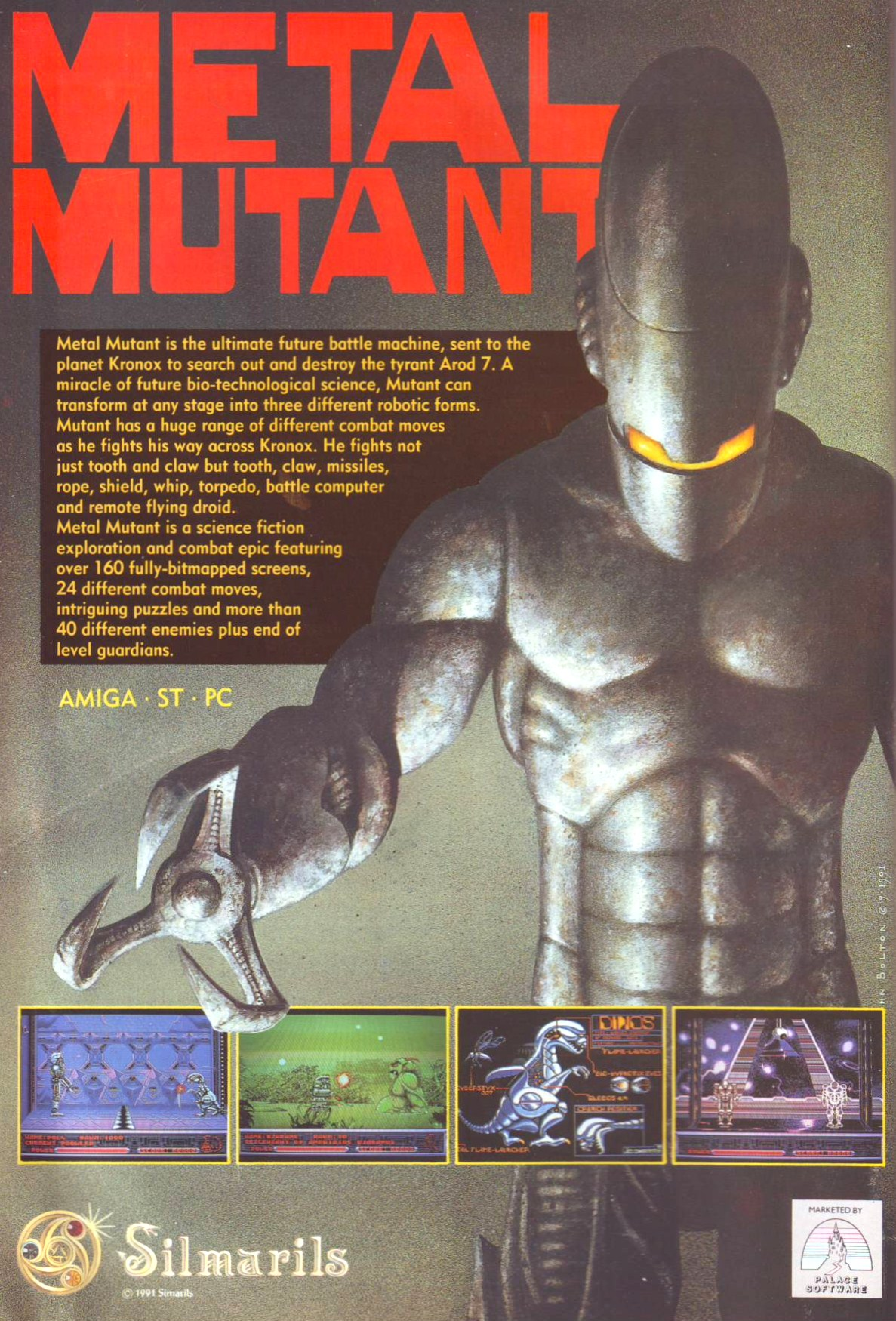
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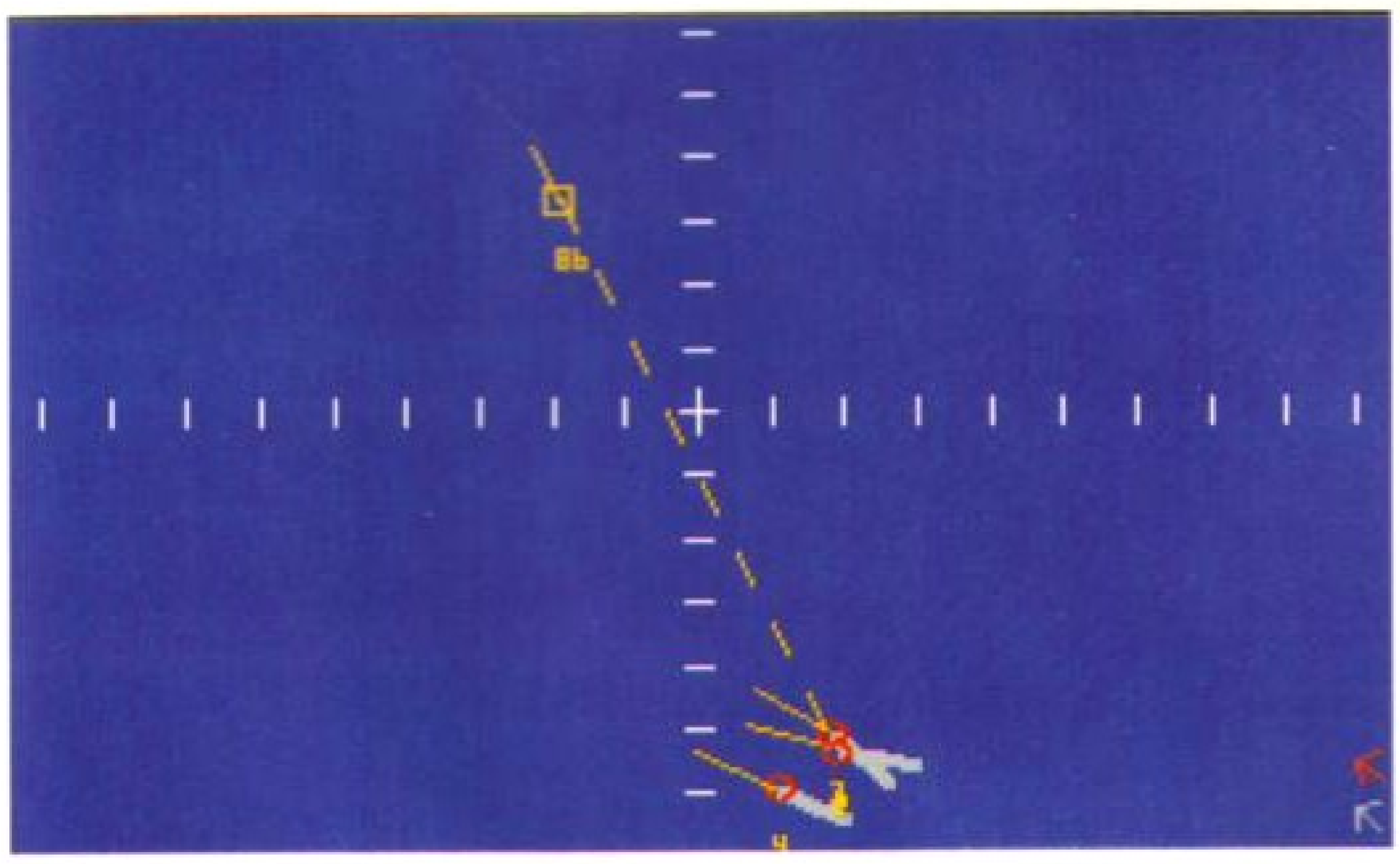
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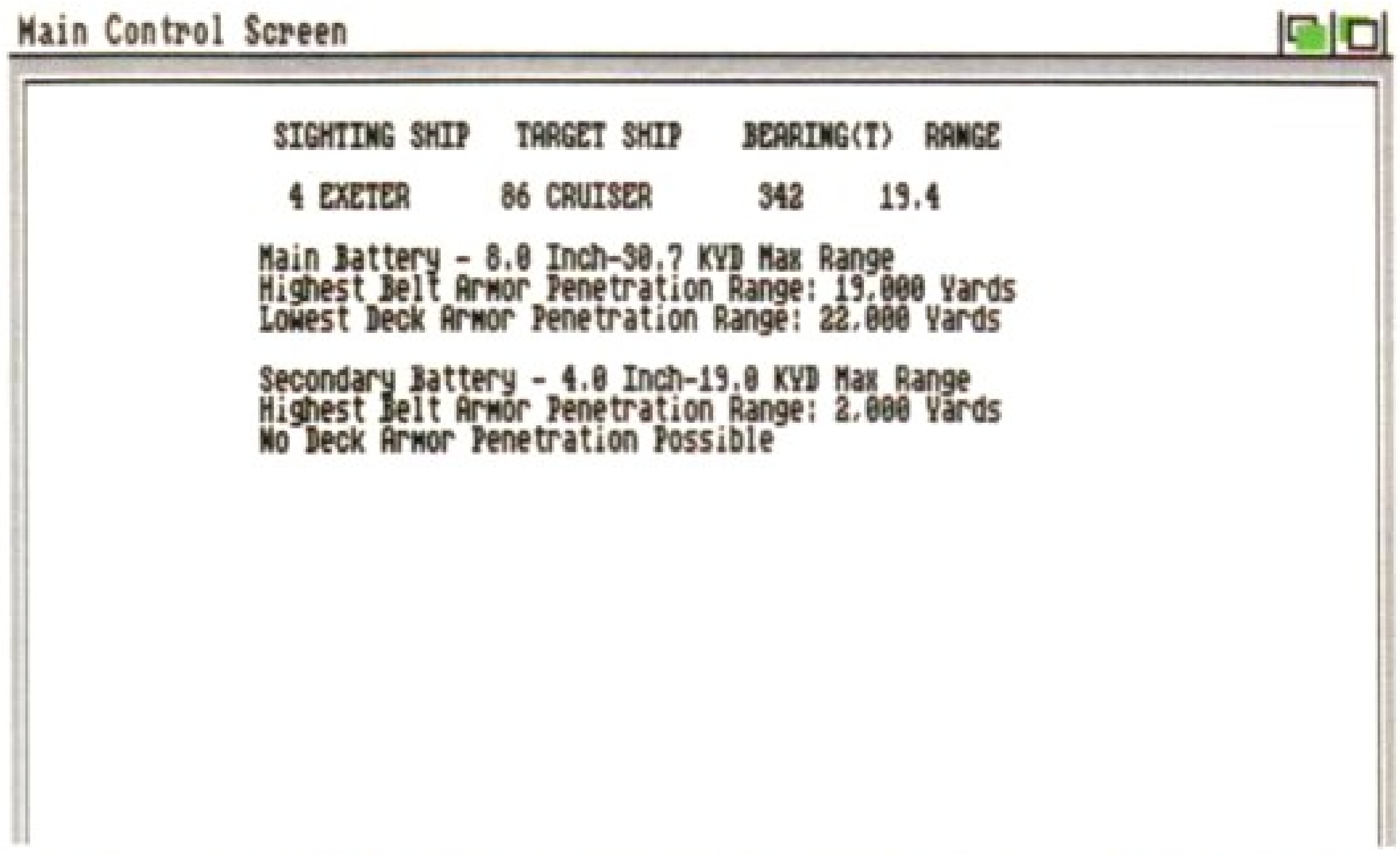
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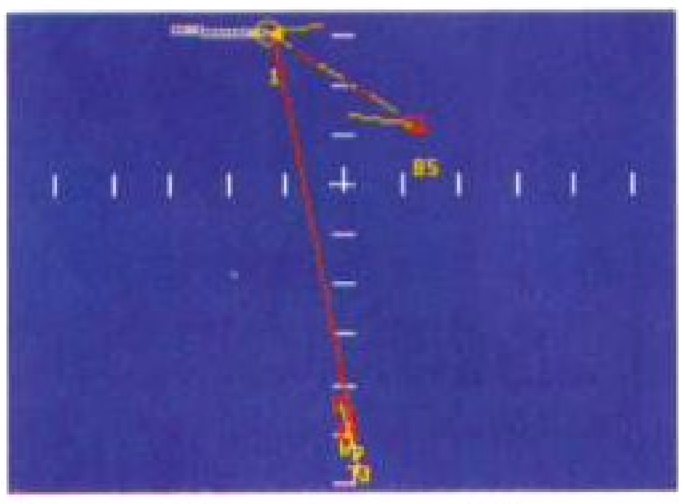
The battle plot displays your three ships, Exeter, Ajax and Achilles as they try and ensnare the Graf Spee. They are firing with a mixture of guns, most of which are eight-inch (indicated by the dotted lines).



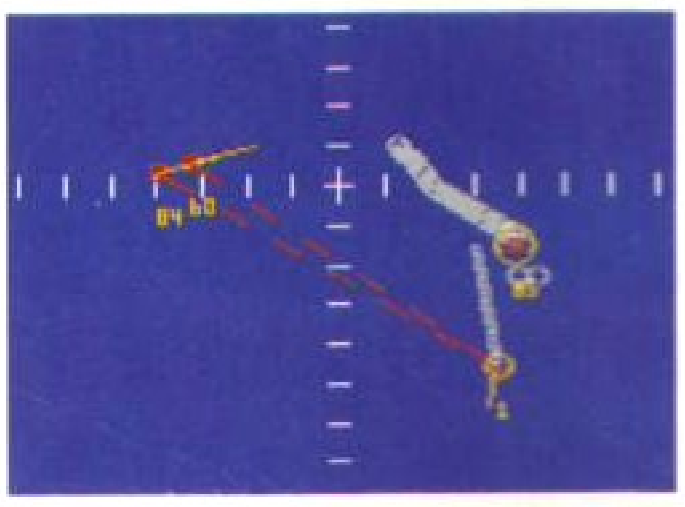
A ship report on the Exeter, a cruiser, shows the current status of all the weapons and mechanical functions. It's all OK at the moment. The Graf Spee is ranging in, but hasn't yet achieved a hit.

ACTION STATIONS

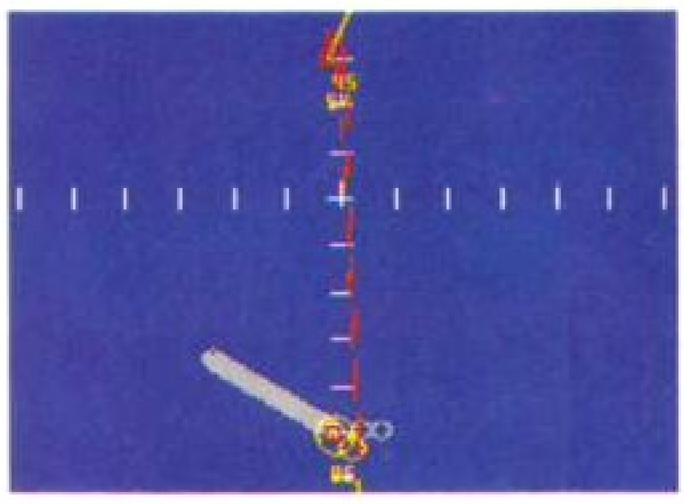
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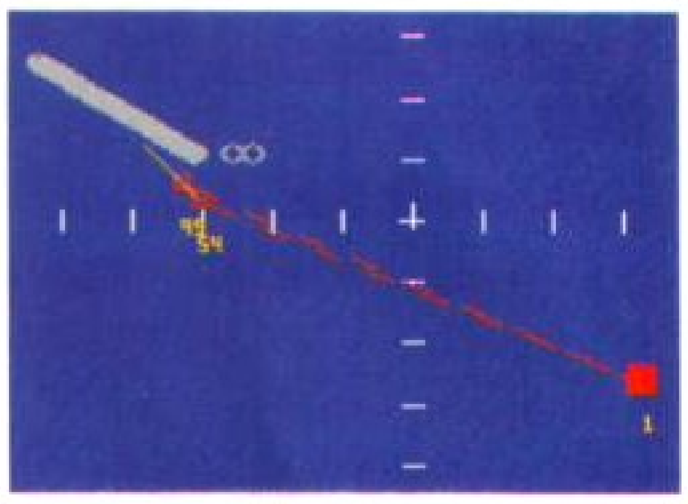
The Graf Spee has mortally wounded the Exeter, which is lying dead in the water, smoke pouring out as fires rage uncontrollably. The Spee is closing in fast for the coup de grace.



The Exeter isn't firing so the Graf Spee moves in far closer than it otherwise would have dared. Salvoes at this range can't miss, and will do maximum damage to the stationary British vessel.



But the Ajax and Achilles have returned to the fray, concentrating their fire on the Graf Spee. The Graf Spee is ignoring them in its haste to finish off the Exeter, whose crew are trying to escape.



But the Graf Spee has taken too much fire from the Exeter. It gives up and rolls over. In reality this prompted the Graf Spee's captain, Hans Langsdorff to scuttle the ship and take his own life.

Naval warfare was never the same after the demise of the battleship. The Second World War replaced it with effective sea-borne aviation and soon after that came the age of the guided missile.

But the battle fleets of old brought a chess-like element to warfare with hundreds of ever-changing variables to consider.

It's this complexity that *Action Stations* tries to simulate. As you can imagine, you don't usually just sail up to the enemy and fire your guns. You must weigh up your relative fire-power, manoeuvre, integrate all your weapons systems and out think all of your opponents.

All this plus up to 20 different ships under your powerful command. It's the ultimate in management simulations.

Half Drake and half Nelson

The game runs in three minute turns rather than realtime, which is a pity. You therefore have ample time to work out your tactics, but there's an awful lot to decide. *Action Stations* is astonishingly detailed and very complex, and if you're not natural admiral material you'll need to ingest the large manual which, for a naval game, is remarkably dry.

A variety of scenarios, ranging from Pacific carrier battles to the hunting of the Bismarck in the Atlantic is included. You can play a human or the computer, and can set up random or historic positions and conditions. Then it's up to you to rewrite history. (Using your skill and judgement place an 'X' where you think the enemy fleet is).

You don't get any views of the action – the only graphics are the battle plots. This is the most useful function you have, and it's there that the balletic twists and turns of the 50,000-ton battleships are shown. Everything is menu driven, and every aspect of your ships can be called up and altered. Indeed it isn't possible to let all your sailors get on with the job; you must constantly supervise, assign targets and give orders. During combat, damage reports flood in (often literally) and you must take action to stop fires, encroaching water and panicking midshipmen.

Contemplate your naval

The computer has eight skill levels and many of the battles are distinctly one-sided so it's possible to indulge your appetite for winning to excess. The accuracy and detail of both the vessels and the encounters will impress many a war buff, but it would have been nice to choose the ships to pit against each other.

The big fault is that the game runs too slowly. It does seem to calculate everything from the ocean currents prevailing to the hair-loss suffered by each Captain but does it need to be so slow?

That aside, it's a very specialised game, it's a whole evening tied up and, if you like the thrill of the hunt, it's fascinating.

James Leach

THOSE IN PERIL...

May 28 1941. A freezing dawn and the battlecruiser Hood was chasing the German flagship Bismarck in the Denmark Strait, north of Iceland. Bismarck targeted Hood and opened fire from 16,500 yards with a salvo of fifteen-inch shells. They hit, penetrated Hood's rear-deck armour and detonated the aft gun magazine. Flames rocketed to 1000 feet in the air, thunder was heard and Hood broke up and sank. 1,338 men drowned. Three survived. Fifteen minutes had passed.

VERDICT

- At first, *Action Stations* is pretty impenetrable.
- But the level of authenticity is impressive.
- The game spends too long pondering.
- A bit technical - most of the excitement is left to the imagination.

70%



Take that! Two giant robots battle it out in this futuristic beat-em-up. As well as punching each other pieces, missiles and laser beams can be used as well. As the damage takes its toll on your robot, indicators tell you the state of your droid's health. Should one turn completely red, then that part is immobilised.





Part of the impressive title sequence at the start of the game. The background scrolls in gob-smacking parallax as you ascend the height of the robot. The in-game effects are pretty too. There's some nice animation sequences on some of the fighting moves.

METAL MASTERS

INFOGRAMES ■ £24.99 Joystick

The beat-em-up has grown up. In fact it has grown into a couple of 100-feet high robots who don't mind beating the silicon out of each other. In the sport of the future it's not people who get hurt, instead it's robots who take the pounding.

In a cityscape arena the metallic monsters blast, pummel and generally try to reduce their opponents to a heap of iron filings. This sport is impressive to watch, harmless to humans, and keeps the scrap-metal merchants happy.

The body shop

Before any of this takes place though, the robots need to be built. For your first fights you have the default, and weakling robot. But win a battle and you get cash for your trouble. Cash can be spent on uprating your body parts for a leaner, meaner machine.

Three basic building blocks are used to build the oversized metal men. Legs are needed to manoeuvre, arms with which to do the business, and a body unit to control and to hold the lot together. Many types of each are available, costing more the tougher or more deadly they are.

Parts can be sold too, though they depreciate in value the more worn they are. The more battles won, the better the robot you will be able to afford. This doesn't make things any easier though.

Let the battle commence

You will be fighting tougher adversaries the more experienced, and the more powerful, your robot is. There are two modes of combat. From afar you can fire missiles by holding down the button and pushing in the appropriate direction; up to shoot from your head, left from your left arm and so on.

In close combat hits are scored with punching movements, allowing you to aim for different parts of the body depending on the direction the joystick is pushed in. This is fine for straightforward body blows, but things can get a bit messy when trying for those diagonal punches.

The computer-controlled robots are dead hard. They manage to avoid what you throw at them quite well, but always seem to manage to land blows on your mechanoid. It's a fair old struggle to win even your first fight.



Your robot is made from four main body components; legs, body unit and a pair of arms. You may buy additional body parts with cash earned from winning battles. The arms have a variety of weapons attached to them. Inevitably the better they are, the more they cost.

Two's company

Metal Masters can be played on your lonesome, or against a buddy. The two-player game certainly offers the most fun; there's far more satisfaction to be gained by beating your chum three times in a row than in humiliating (or being humiliated by) the computer.

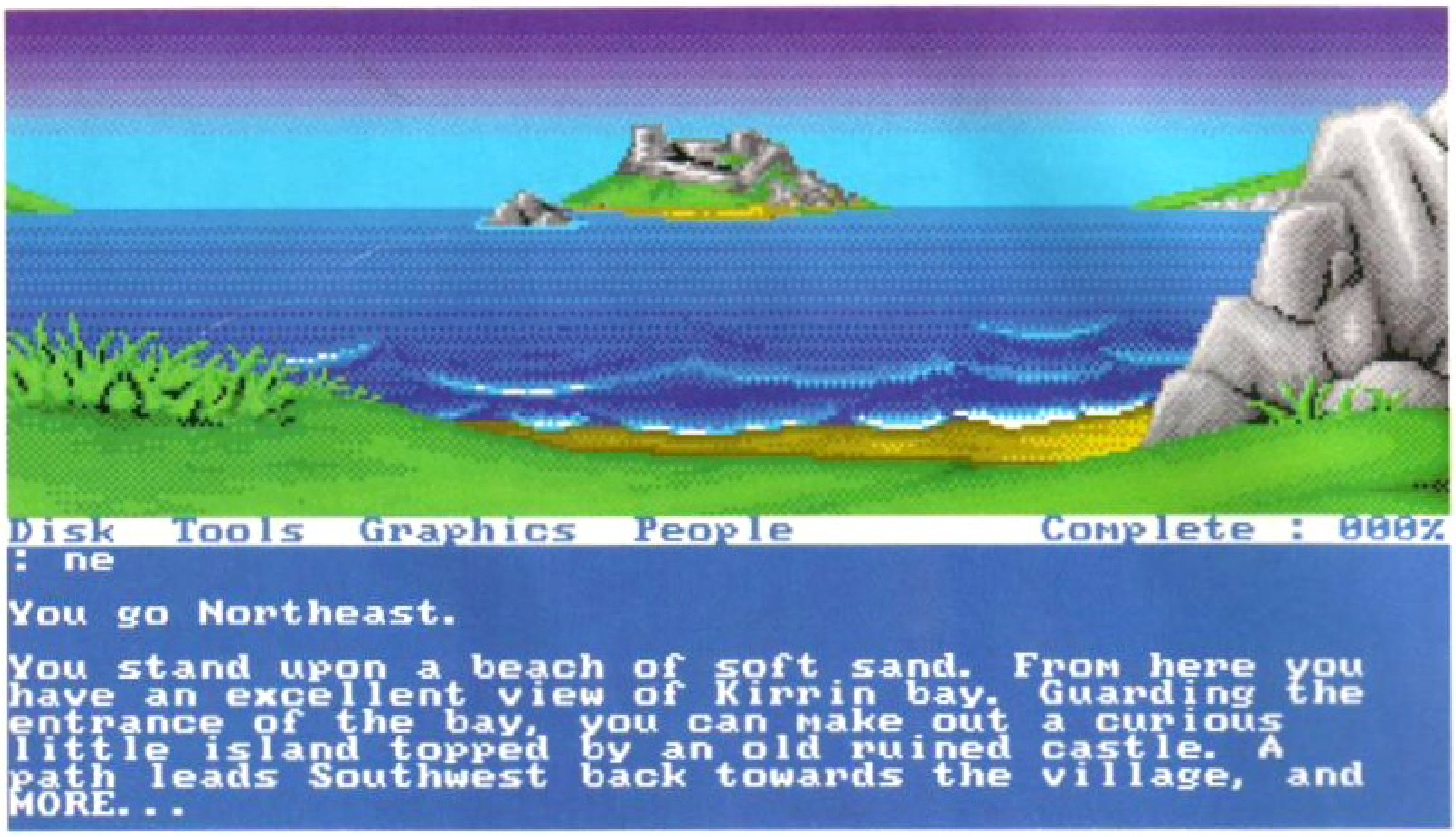
Underneath all the pretty graphics (and they are quite pretty), *Metal Masters* is a fairly straightforward beat-em-up. In fact it is quite limited in the number of fighting moves when compared with other, more conventional, games of the genre. There's no backward somersaults here to get in a tactical position, instead it's merely a case of walking up to your opponent and bish bash bosh.

Added to that, the computer is a very tough opponent, seemingly unbeatable at first. And for these reasons it's frustrating to play and rapidly becomes boring. There's limited enjoyment to be had from playing one of your mates, but as far as long-term interest is concerned, forget it. ***Adam Waring***

VERDICT

- Nicely animated graphics – the title sequence is particularly impressive.
- The simultaneous two-player mode is fun with a friend.
- The better you get the tougher the opposition, not that they're weaklings in the first place.
- Not an awful lot to it – even less to offer than the already tired beat-em-up formula.

52%



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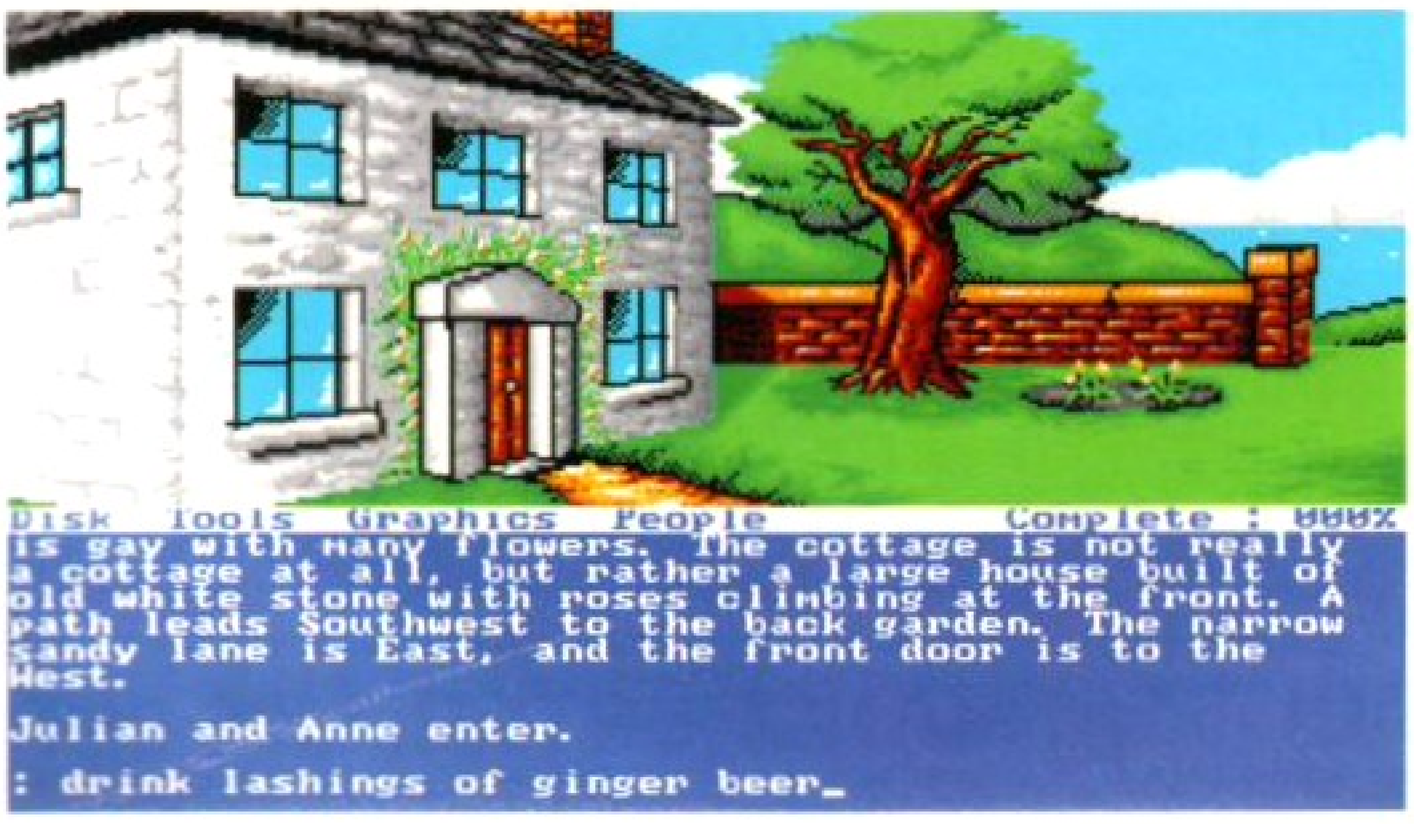
ENIGMA VARIATIONS ■ £24.99 Keyboard

Gosh! There's something jolly suspicious going on at Kirrin Island. There are some nasty foreign-looking men hanging around the village and Julian thinks that something rather peculiar is about to happen.

George is being her usual strange self. Anne is whimpering like proper girls do in times of danger and Dick has eaten absolutely heaps of fresh tomatoes and tinned peaches. Timmy barks and plays, because he knows they are about to have another absolutely smashing adventure.

Aunt Fanny and Uncle Quentin have invited the Famous Five down to Kirrin Cottage for the hols. The Famous Five arrive just in time because it's a glorious summer day and just perfect for a swim. First, though they all have to get to the house for tea, but everyone is just dying to explore the mysterious Kirrin Island.





The Famous Five is a text adventure, relying on graphics purely as a decorative measure. It follows the plot of the Enid Blyton book, *Five on a Treasure Island* and so those of you lucky enough to have read that 'classic' piece of literature will have a jolly big advantage to begin with.

The Famous Five can all be controlled independently, but generally follow each other around. Like the books, most things can only be accomplished as a team (with the exception of Anne because she's such a silly cry-baby) and each member has their own abilities and attributes.

Cry-babies and transvestites!

Julian for example is strong and brave. Dick isn't quite so strong, but he can eat like an absolute pig. George dresses in mens clothes, but she is an absolutely brilliant swimmer. Anne cries a lot and wets herself in times of moderate to extreme danger. Timmy the dog is a scruffy sort of pooch, but he absolutely adores the Famous Five. Apparently he likes chasing rabbits, but he never catches them!

What fun it is to be the Famous Five. After settling in at the cottage, they head off for a swim and what do they find? A boat! Wouldn't it be absolutely super if they could row to Kirrin Island? After all it is a simply glorious day. Ginger beer might be refreshing, but nothing beats a nice dip in the sea!

The plot, as it unfolds, reveals a sunken wreck, a treasure map and a group of very suspicious looking chaps. Treasure seeking is the order of the day, but a storm is brewing, and getting to the island is harder than it seems. Are the Famous Five strong, brave and clever enough to save the day? Only you can decide.

The game relies almost entirely on text. The graphics as and when they appear tart things up a bit, but give no clues which aren't included in the text.

Dick and Fanny

A distinct sense of humour pervades the game, although this is mostly due to the very nature of the Famous Five books. It's all tongue in cheek, and pathetic though it sounds, it's hard to avoid chuckling when Dick and Fanny have a conversation.

The manual claims the game has "a very sophisticated parser". This is a somewhat dubious claim. The text often suggests actions which you cannot perform and a painful and confusing system is used to move the Five around. You cannot, for example, simply leave the house. You have to first go to the door and open it. It may be logical, but it's not very friendly. Even eating sandwiches is a chore – remember to remove the paper. Still, that bit of paper might come in handy later...

It's a reasonable adventure. There are lots of things for the Five to do, and getting those suspicious looking gentlemen in the clink will take some doing. A little easy for the hardened adventurer, but absolutely smashing fun for Famous Five fans. ***Frank O'Connor***

VERDICT

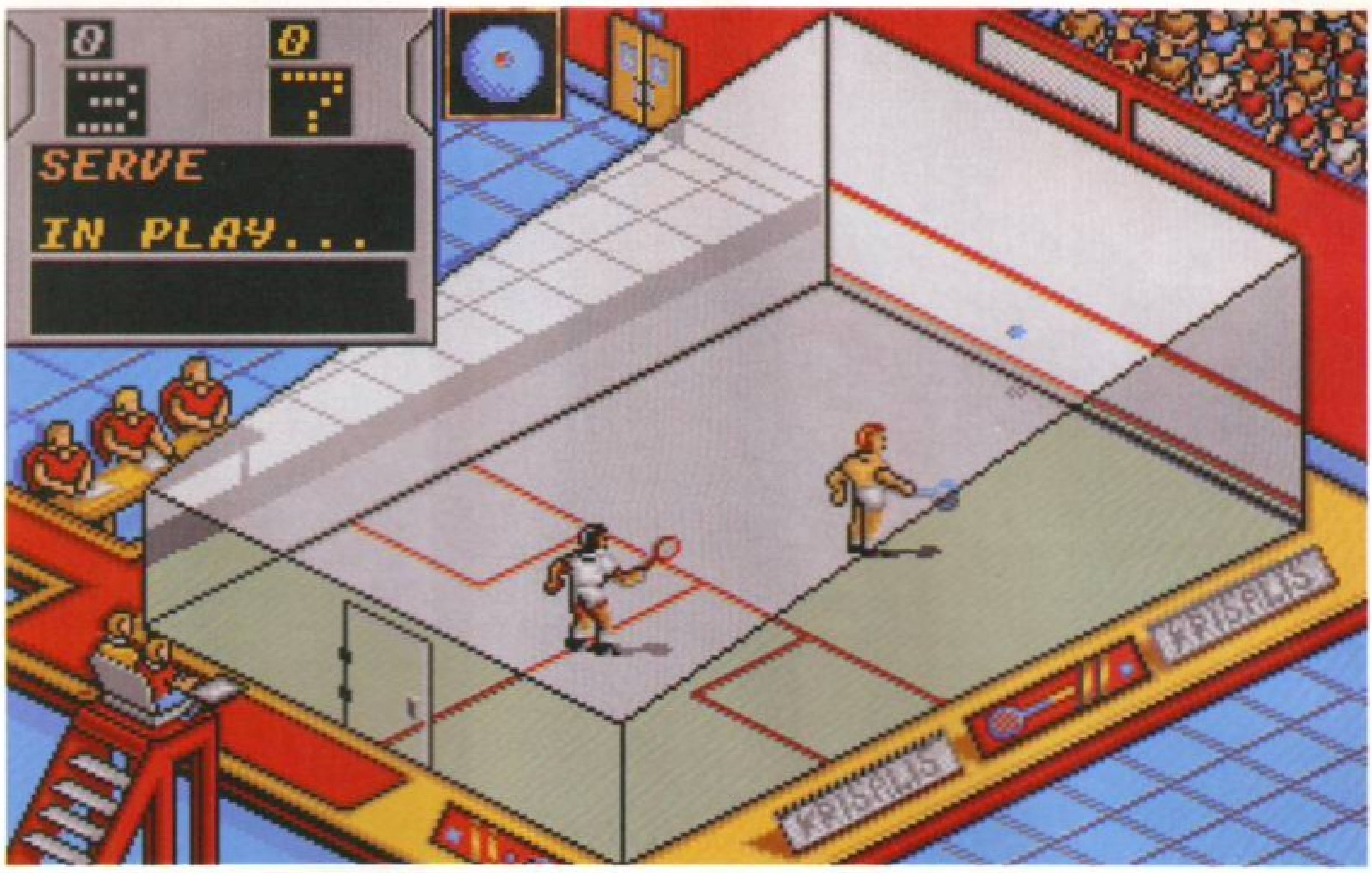
- **Nice, but largely irrelevant graphics. They loosely describe the scene, but give no clues to the action.**
- **A tad too easy, especially if you have read the book.**
- **Large, and on the whole a well thought out scenario.**
- **Distinctive style, and bags of laughs.**

73%

JAHANGIR KHAN'S
WORLD CHAMPIONSHIP SQUASH

KRISALIS ■ £24.99 Joystick

These days, it's almost a must to have your sport simulation endorsed by a popular personality. Gazza has had his name on football games, while Jack Nicklaus and Nick Faldo golf games are also available. The latest sports personality to have his name featured on a computer simulation isn't quite as well known as the aforementioned stars, but his achievements, though, are in fact near-legendary.

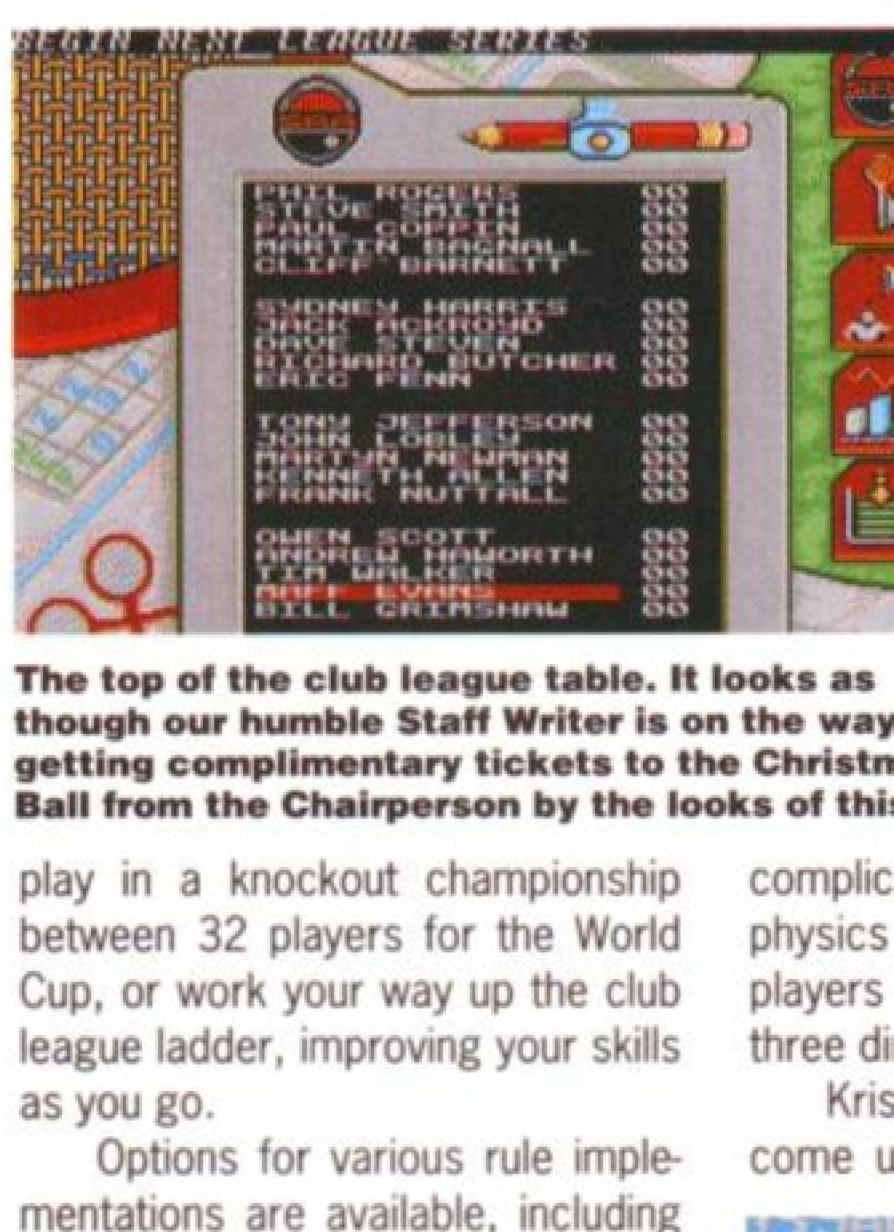


The first match of a set is under way, and player two seems to be betting pretty close to victory. Just a couple more points to seal the game. A power shot close to the wall is a good start, anyway!

Like a rubber ball

Jahangir Khan is the world's highest-ranking squash player, he has won all the major squash titles as well as remained undefeated for over 500 international matches that he's played in the last six years. Quite a feat, which is unrivalled in any other sport.

Now you can take on the role of the number one player in Krisalis' simulation. You can either play in a knockout championship between 32 players for the World Cup, or work your way up the club league ladder, improving your skills as you go.



The top of the club league table. It looks as though our humble Staff Writer is on the way to getting complimentary tickets to the Christmas Ball from the Chairperson by the looks of this!

Options for various rule implementations are available, including changing the serving rules, setting the total number of games and opting for the use of different grades of ball. You can practise a match at any time, or just watch the computer players battle it out to try and work out their various tactics before you go up against them.

Back against the wall, NOW!

The game is played on an isometric 3D court, starting with the players having to choose 'rough or smooth' to elect a server. At the end of the game, the winner gets to improve his speed, fitness or touch skills, ready for the next, and arguably more difficult, opponent.

There aren't many squash simulations found on home computers, in fact the last noticeable effort was in fact *Jonah Barrington's Squash* which was many, many years ago. This is probably due to the complications in calculating the physics for a ball as well as two players bouncing around a court in three dimensions.

Krisalis have managed to come up with a fair interpretation of the sport, combining well drawn, colourful graphics which move around the screen smoothly with well-sampled, realistic squash court sounds to create the atmosphere of a real match.

Occasionally, the perspective is a little off putting, making you run the wrong way at the crucial moment and the timing of the shots is pretty tight, which means you will have to get a lot of practice in before you can make it through to the top of the league or into the later stages of the cup.

As a two-player game, *Jahangir Khan* is quite a laugh, since both players have their quirks your opponent is a a perfectly-positioned computer drone who seems to be able to reach even the trickiest of shots!



The big tournament is about to get under way, so it's time to have a flick through the files and see just what you're going to be up against. This character looks as though he could be a pretty mean opponent!

If you're a fan of the sport, this may be just the thing to work out your energy if you can't make it to the sport centre. If you're new to the game of squash, then try this little simulation anyway – it could start a new interest. ***Maff Evans***

VERDICT

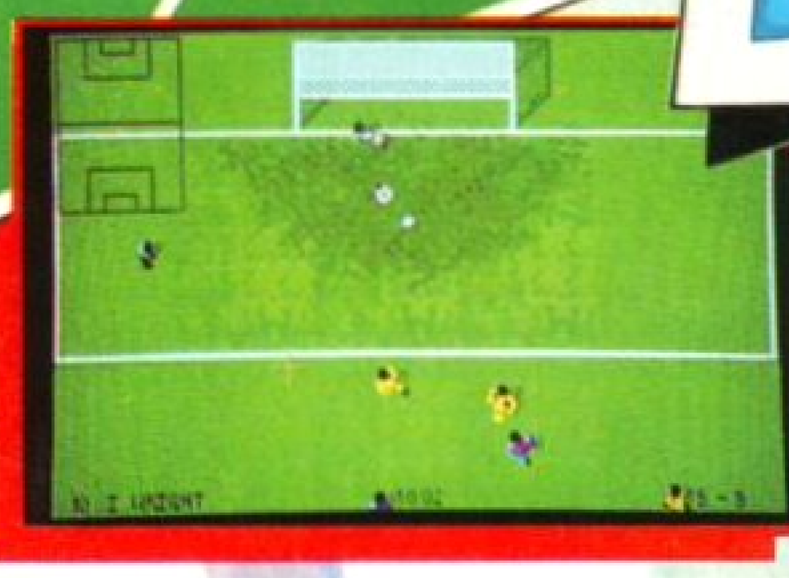
- **Well drawn colourful sprites and backgrounds portray the action nicely.**
- **Superb sound effects bring home the atmosphere of the court.**
- **Occasionally odd perspective takes a little getting used to.**
- **A good implementation of the sport which unfortunately won't be to everyone's taste.**

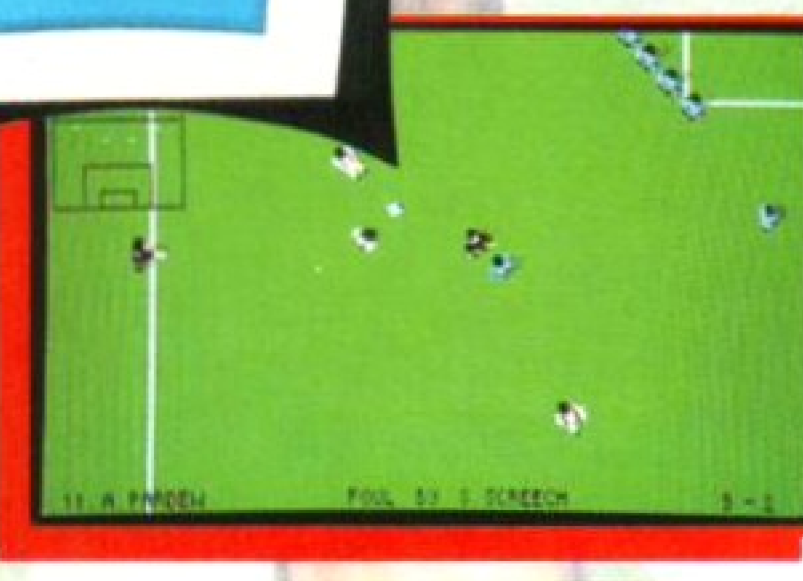


KICK OFF 2

A NEW DI
SOCCER S

Amiga Screen Shots





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- SUPERB TACTICAL GAMEPLAY

KICK OFF 2 greatly enhances the gameplay of KICK OFF, winner of the THE GAME OF THE YEAR in the U.K., and similar awards right across Europe. A host of new features have been added to the ones that enthralled players the world over.

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* **Instinctive Kick Off joystick controls to dribble, pass, shoot, head or chip the ball and do sliding tackles.**
* **Set piece. FREE KICKS including dummies and the ability to dip the ball or bend the ball round a defensive wall.**
* **9 types of corner kicks with full control of shot power. Long and short throw ins.**
* **Team selection from a squad of 16 with substitution and a choice of tactics.**
* **League and cup competitions with Extra Time, Injury Time and sudden death penalty shoot outs.**
* **Facility to view, edit and save the Action Replays and create a Golden Shots disc.(Excl. IBM & CBM 64)**
* **Facility to load Player Manager teams and tactics for a single or league game.**
* **Red and yellow cards, 16 different referees, injury time and a host of features to create an atmosphere for a game which is real fun to play.**

ST ACTION - The best game ever to grace the ST. Highest accolade I can give.
AMIGA USER INT - The best computer game ever **97%**
THE ONE - Ultimate soccer simulation. **96%**
THE ACE - Brilliant. Buy, Buy, Buy. **930.**
AMIGA FORMAT - Best footy game to have appeared on any machine. **94%**
ST FORMAT - What a game! Gem to play. Magic. **90%**
C & VG - Championship winning material. **95%**
GAMES MACHINE - Probably the best sports game ever. **92%**
COMMODORE USER - No other footie game can touch it. **90%**
AMIGA ACTION - Surpasses all other football games. **93%**
POPULAR COMPUTING WEEKLY - Nothing short of brilliant.
NEW COMPUTER EXPRESS - Computer football event of the year.

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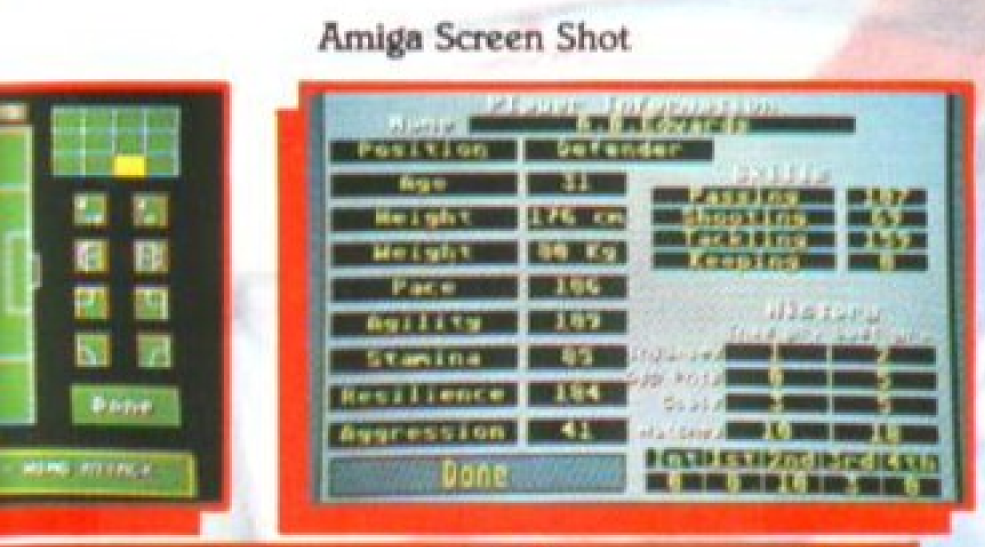
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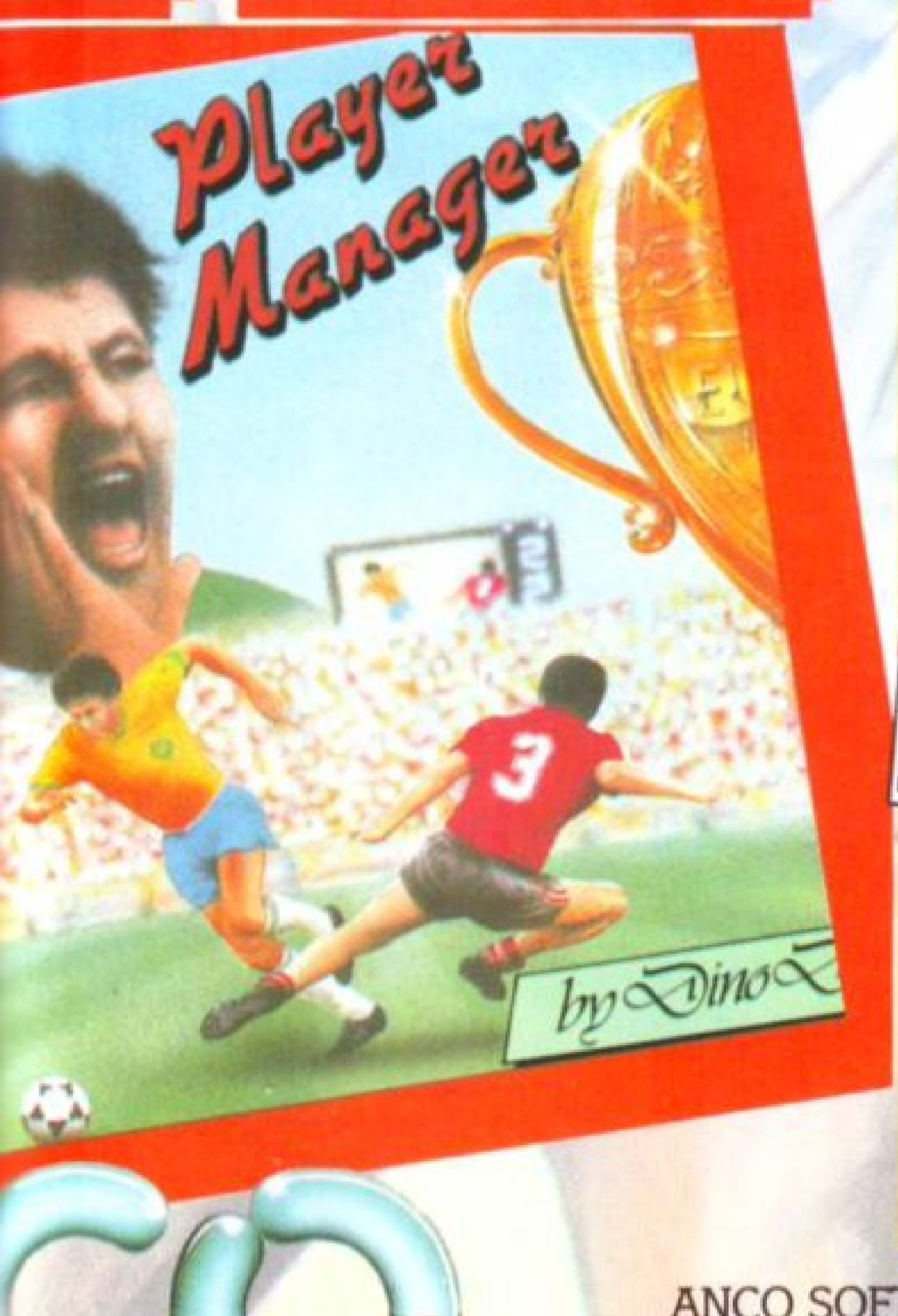
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Amiga Screen Shot







Draft specifications. Subject to changes without notice

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ProFlight from HiSoft



Fuel up, weapons loaded...let's fly...

The Tornado Flight Simulator for your Amiga and Atari ST



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Some comments from ProFlight Customers

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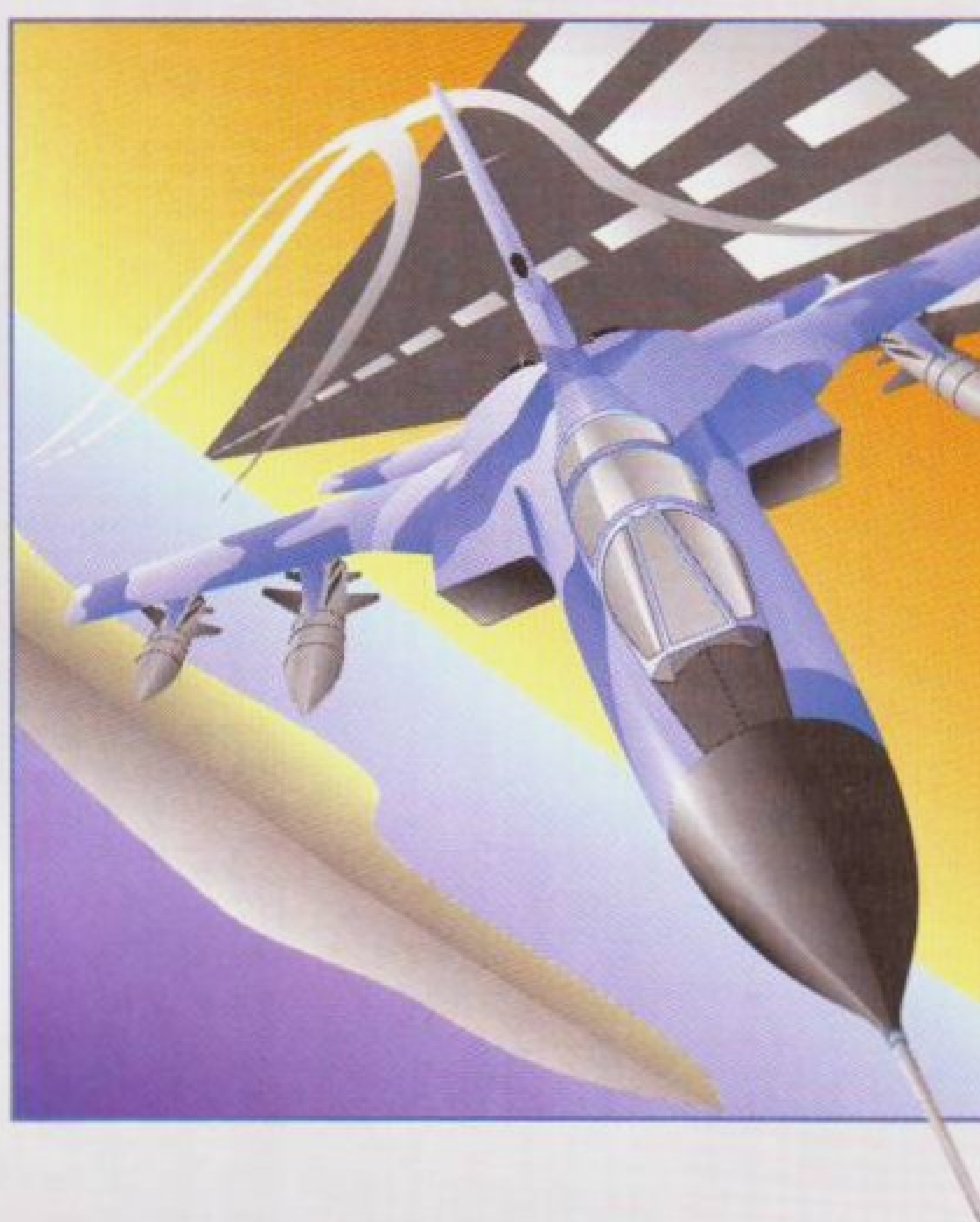
"For realism, beats anything I have ever seen on a home computer."

"Good fun & makes me nervous when flying dangerously - 10 out of 10."

"Brilliant manual, brilliant simulator."

"Another HiSoft winner!"

These are all unsolicited comments from users of the Atari ST version of ProFlight.



and the Reviews ...

"The sheer range of things to do makes this a winner and with future expansions planned this one could become as popular as the now classic Flight Simulator II."

"A great deal of thought has gone into how the plane handles and the controls are very responsive."

ST Action, March 1991.

ST ACTION A1 RATED

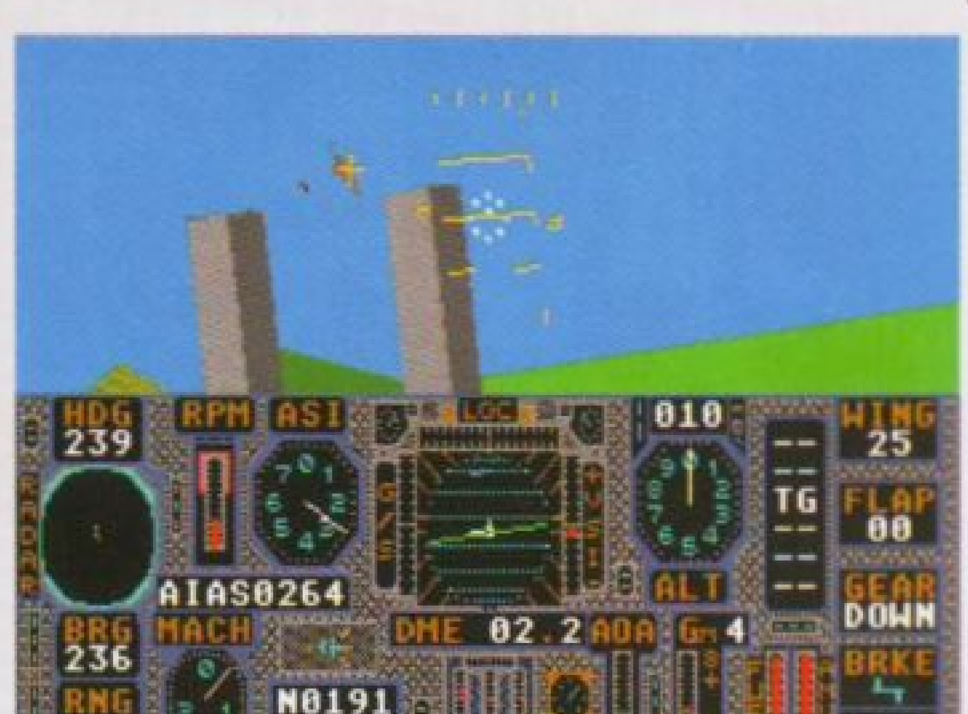
"ProFlight isn't the same as other fighter sims - it really does feel real."

"ProFlight is addictive ... if you've g[ot] the hang of less realistic simulators, moving on to ProFlight will give man[y] more months of exciting flying. Very complex but enjoyable and well wor[th] the clams!"

Atari ST User February 19[91]



...change to missiles...locked on...



...heat-seeking missile launched...



...target destroyed...back to base...

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ProFlight; a supremely accurate simulation of the Panavia Tornado military aircraft, a plane that is the fastest aircraft in the world at ground level (Mach 1.2) and one of the fastest at any level (Mach 2.2) with advanced swing-wing technology that gives it a truly multi-role capability. ProFlight uses complex and exact flight equations that allow you to fly this powerful fighter just like its pilots.

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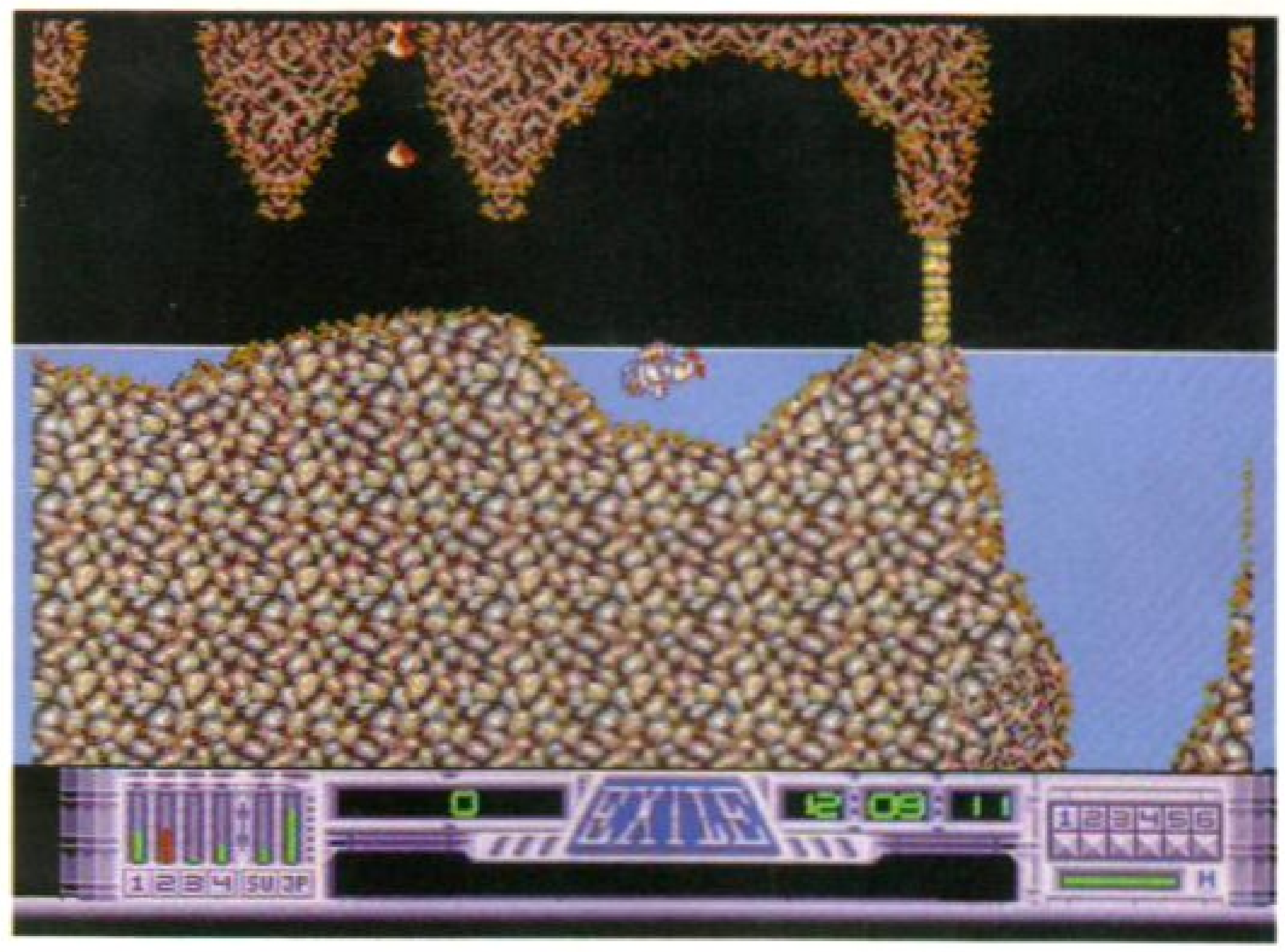
ProFlight is available from all good computer stores and costs only £39.95 inclusive (UK only); if you have difficulty locating your copy, please call HiSoft on 0525 718181 and ask to speak to Julie.

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***Exile* allows you to control robots, but others try to kill you. The ability to adjust a grenades trajectory comes in handy here as you can sneakily lob a bomb through the gap without getting shot.**



The spaceman goes swimming. The danger here isn't drowning but being savaged by some particularly tough piranhas. Trouble is you'll have to get wet if you're to free the crew and be home in time for tea.



Run from a gun turret you accidentally throw a grenade ahead. Such mistakes are costly as kit is in short supply. It would be nice to see what that strange blue box is, but the armour won't take much more.

EXILE

AUDIOGENIC ■ £24.99
Keyboard or joystick

Exile is odd to control. Rather than relying on joystick or mouse, the designers have made keys the optimum control method for this arcade adventure.

The Exile is trapped. The rest of his crew, have been entombed inside the planet that the ship is now orbiting. With only a jet-pack you have to organise his rescue.

Pack man

The first problem is one of self-control. Gravity ain't what it is on Earth. So every jet on the pack must be employed to keep from plummeting downwards. This, highlights the games reliance on key commands. Every option available for key users is on offer to joystick users, but still the joystick seems lacking. It doesn't enjoy the subtle touch of proper key controls (ie an arrangement that allows both hands to be used). The joystick combinations requires the fire button to be held down while you move the character, which proves awkward. Once mastered the keyboard proves to be an incredibly flexible user interface.

Exile develops a vast range of puzzles and tests. For example any object can be picked up, put in the pocket, dropped and thrown. On top of this comes the ability to change trajectory of any thrown object; which allows pinpoint targeting instead of hurl and hope.

In *Exile,* unlike most games, the guy doesn't actually die. When his energy levels reach zero, his suit teleports him back to the base ship. Four teleport points are available on demand. After logging them, a key press whisks him to the chosen location. This gives him the ability to run into trouble and teleport out, and is built into the game as the solution to some of the more dangerous problems.

The *Exile* system is packed with features that allow the world's logic to be abused to your advantage. The scroll, for instance, lags behind the hero, but you are offered the chance to lock it, so it scrolls swiftly with him. When the going gets hectic this lessens confusion but when unlocked the screen scroll can be used to peek at areas you haven't yet reached.

The most convincing element to be found in *Exile* is the logic on which the entire world and its composite elements are built. To scare away animals, for instance, you will need portable fire, so both flames and torches have to be found and then manipulated.

To extinguish fires you'll need water; but that requires finding and filling a container. As water is a liquid and you're using a jet-pack, careless flyers can easily spill the water from the open flasks.

A to Z

Exile is no classic, despite its glorious control system. While it is totally flexible, the rest of the package doesn't deliver in excitement, fascination, tension and design.

The graphics detract from the game's sophistication, rather than providing the canvas on which this game is painted. The game doesn't develop quickly enough to grab players by their interest and drag them in. The first layer of traps are deadly enough to frustrate, but vary little from the fetch object A to use on object B thus freeing object C variety. It is also too easy to find yourself stranded after a single slip up. RAM-save and disk-save facilities are provided to help alleviate this problem but this cures the symptom and not the ailment.

Exile is a great game system, employed to drive a standard game. The logic behind the whole affair is sweet and while the control method is complex it allows such free movement it's worth learning.

The lack of dynamism makes this a game for the connoisseur, who fancies something different. *Exile* is different, brilliant in parts, poor in others it defies categorisation. If this system could be married to a more rivetting concept we would be talking major title, without this pulling power it's relegated to the role of delightful curiosity. **Trenton Webb**

VERDICT

- **Outrageously complex, but thorough control system.Poor graphics impair the initial impact.**
- **Lacks pace and a decent hook, to make learning the controls worthwhile.**
- **Logical, lateral and literal thinking puzzles to solve.**

68%

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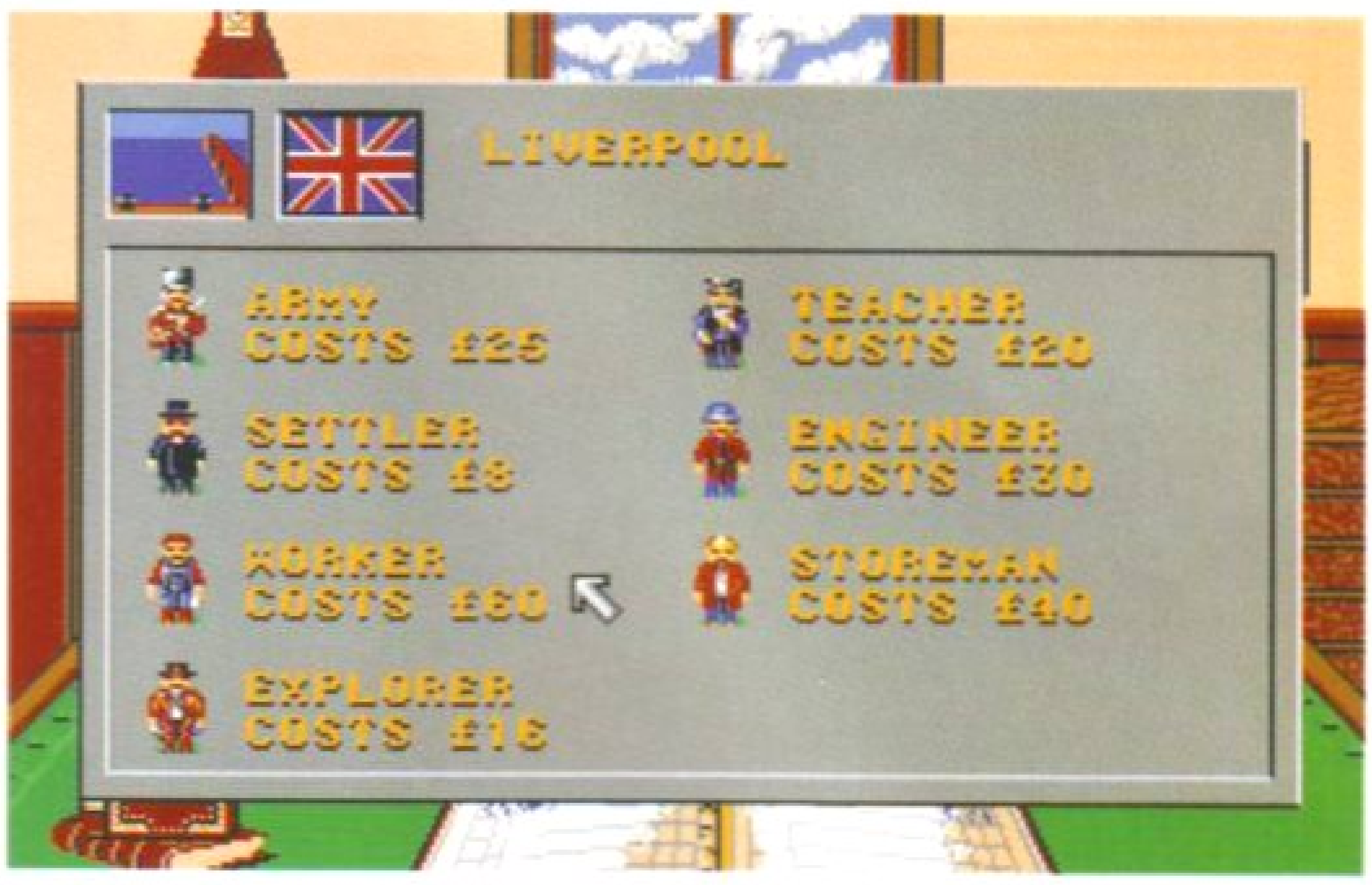
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Colonists are ten a penny – well, almost! Hire them here before sailing them to strange and interesting places, to meet strange and interesting people who they enslave for strange and interesting profits.

MERCHANT COLONY

Impressions ■ £29.99 Mouse

Historically, Europeans have often longed for a place in the sun. The Portuguese, Spanish, French and British were first off the mark as soon as it became apparent that (a) the world was in fact round, (b) there was a large unknown blue bit missing on all contemporary maps known as the Pacific, (c) the lands contained masses of 'free' commodities – gold, silver etc. – and thousands of volunteer workers, ie slaves.

This is history, but Impressions are giving us a chance to relive those days and to right the wrongs of those free-market imperialists. In *Merchant Colony* you get the chance to build your own economic country, ruled in name by the king but in reality by the profit motive.

Firstly you must send ships across the sea packed full of colonists who will build a base and then develop it into a growing, thriving, self-sufficient town. Once these foundations have been laid, they will start to produce surplus goods which can be shipped off and sold at an enormous profit. Or that's the plan: but as ever with the free market, things are rarely so easy. Everything from storms to privateers stands in your path...

Ships for sail?

The drive for empire is led from two main perspectives: a map and an office. The maps range from global, for general route-planning, down to detailed colony-level from which towns are managed. The office is where your East India Company equivalent can be monitored for profitability, ships bought, colonists hired and so forth.

Vital to the running of your Merchant Colony are people. Finding folks who want to get away from it all is easy, but getting the right mix is vital if the colony is to thrive. The eight vital skill types – soldiers, settlers, workers, explorers, teachers, engineers and storemen – all have obvious roles, but are required at different stages. The management side forces continual monitoring of, and addition to, these teams. New needs must be anticipated, because ships of this day take an absolute age to reach anywhere.

The introduction of land and sea battles with pirates allows an aggressive style of play to evolve. Caution has to be built into any gameplan to avoid the ship being scuppered by a stroke of fate: icebergs or locust plagues.

Cursor or curser?

Merchant Colony looks good, for what essentially is a strategic management simulation. Figures only intrude where they have to, namely the accounts. The movement of goods, people and ships is icon driven.

Here *Merchant Colony* starts to show its flaws. When the mouse cursor is moved at speed, it jerks on update and begins to make accuracy difficult. The detailed, colony-level map window can be moved by pushing the cursor at the edge of the screen, but a jerky mouse makes accurate movement difficult, even over small distances.

Yes, *Merchant Colony* is a challenge. It would be unrealistic to expect it to be exciting, but strategy games should have tension – will the grand plan work? Will the enemies attack before you have a chance to finish building up the towns garrison? – and *Merchant Colony* lacks this element. It is hard to build and maintain colonies that are scattered over the globe, but the level of commitment needed to sustain long-term gaming is hindered by this lack of tension.

This puts the emphasis on the subject matter to sustain interest, which means if you're a history buff you'll probably love it, but otherwise everything starts to flag once you've mastered the principles involved. ***Trenton Webb***

GOOD COMPANY?



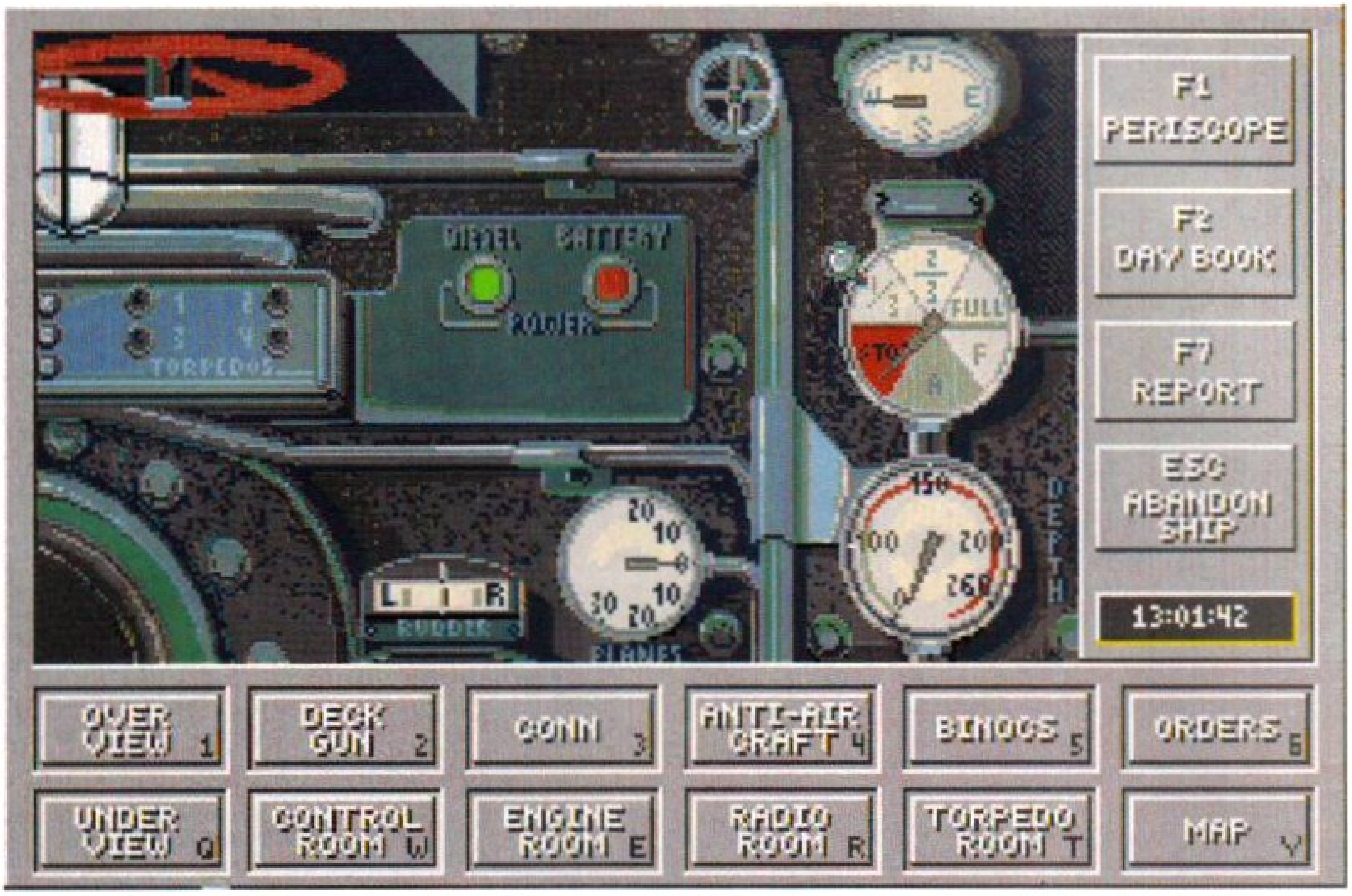
Possibly the most famous of all 'private' empires was that of the East India Company, who from their London desks ruled nearly a third of the world's population. They were established thanks to Queen Elizabeth's Royal Charter of 1600, which gave them a monopoly of all trade between England and the Far East.

This monopoly gave them effective governmental control of most of India during the 17th Century, which can't have been bad for profits. After Pitt's India Act (1784) they were forced to share power with a committee who answered to Parliament. The end was signalled in 1834 when the East India Co lost their Chinese monopoly. In response to the Indian Mutiny (1857) Parliament awarded themselves complete control of India. The company was abolished after the India Act of 1858.

VERDICT

- **Good use of pretty graphics to support a 'strategy' game.**
- **Mouse cursor moves jerkily and hinders detailed control.**
- **Slow switching between screens is irritating as there are few short cuts.**
- **A novel topic for a colonisation game: educational and not set in space!**
- **Lacks a tense bite and so sustained interest can quickly fade.**



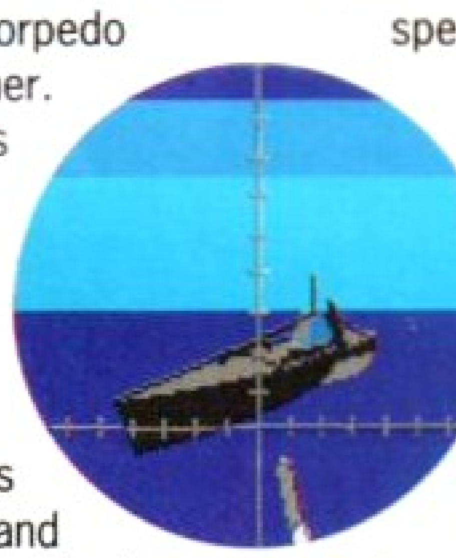


Das Boot **is no real visual thriller. The still screens, like this engine room, are well drawn but don't vary much. The 3D polygons of combat are look best in limited detail, which keeps the game speed up. Luckily the command menu is always in view with the necessary keyboard shortcuts marked, which helps when things get sticky under the briny blue (or brinege blau as they say in Berlin, Hamburg, Bonn...).**

DAS BOOT

Mindscape ■ £34.99 Mouse and keyboard

U-boat simulations have a strange fascination. Unlike flight sims there is little seat-of-the-pants action because the player is captain, torpedo loader and deck gunner. The ship slowly churns through the sea, so there are few speed thrills. However the claustrophobic under-sea battle beckons.



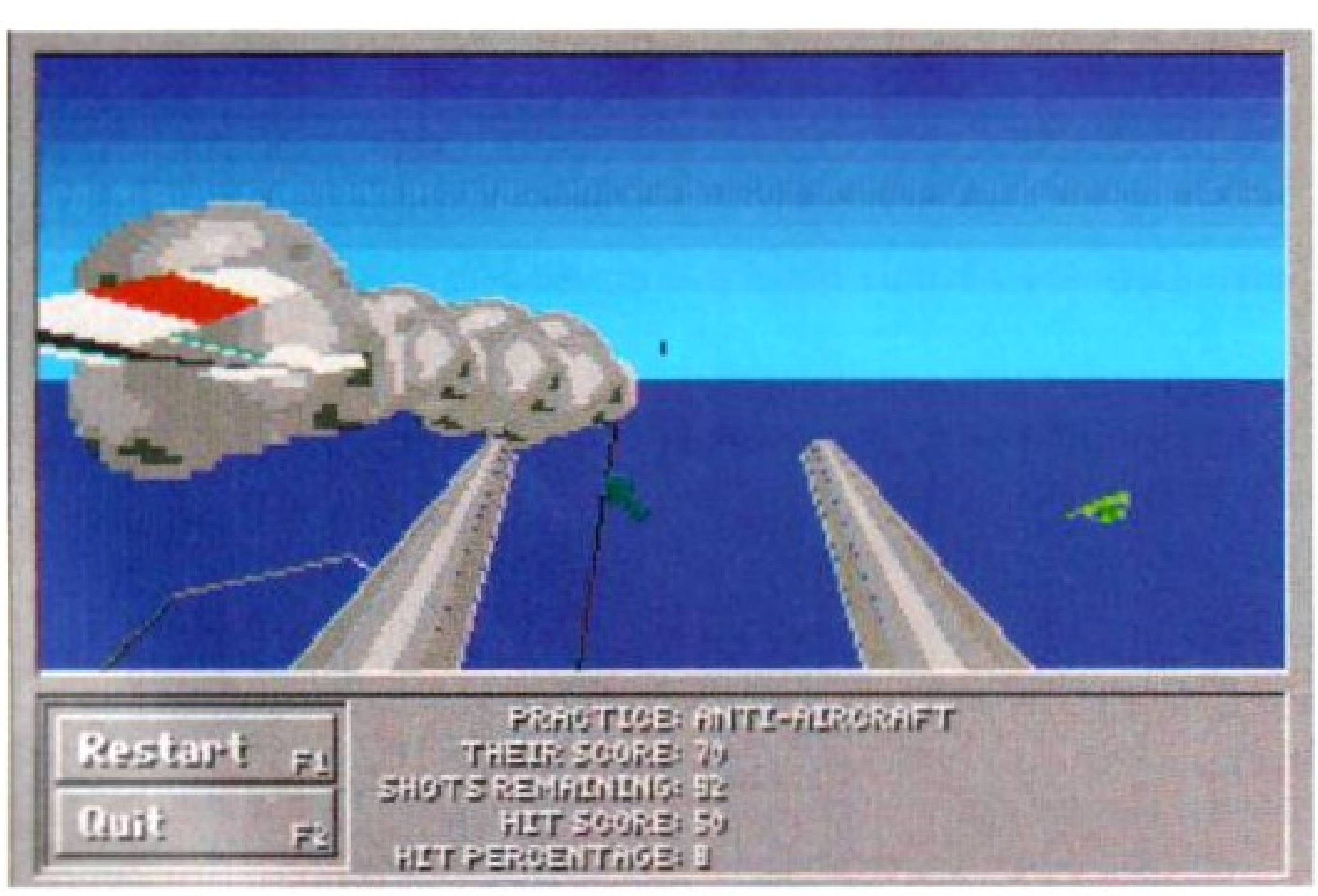
Das Boot offers three different craft and five different campaigns. Each is historically accurate, but can be manipulated to make a beginner's life easier or a veteran's life tougher. *Das Boot* is a 3D polygon war-torn world that's interspersed with 2D options and control screens. The action can be speeded up by lowering the 3D detail levels, depending on how much accuracy you take with your action.

Deck head

The 12 vital areas of the submarine have been isolated, and their functions streamlined, so that a single deck-hand can sail and shoot simultaneously. Accessed by a key-press or mouse click these control screens allow you to leap from bow to stern in seconds. The business end of the sub – deck guns, anti-aircraft cannon and torpedo aiming are conducted in a 3D environment with you doing the pointing and shooting; while the management of the vessel: navigation, depth control and radio operations are conducted through neatly animated 'flat' screens.

This equal split, forces a visit to the practice ranges before play, just to familiarise new submariners with their ship. As there is no single central command panel, knowing where to find specific controls, quickly, is vital. As captain, it's all to probable that you will have to flick between control and action screens in the heat of battle.

After setting sail, radio reports filter through from other wolf-pack members and spotter planes. These need decoding – and the code broken if it is from allied shipping – and the correct course set to intercept. All the while periscopes and binoculars must scan the horizon looking for victims, as the primitive detection systems means visual contact is the only sure method.



Out on the practice range and it's air-attack day. Using the AA gun you take on what seems like the entire Luftwaffe, but being German also they won't sink the sub, Allied planes, though, are not as polite.

On yer' marks

Once in combat *Das Boot* shows itself to be a game of skill and judgement. Torpedoes require 'marks' to time detonation, while the right choice of torp' (acoustic, magnetic or loop) may make up for targeting errors. They must be fired with a considerable lead – this is where the practice comes in handy – calculating where the ship will be when the torpedo reaches detonation distance.

Das Boot, though, is no turkey shoot. Allied vessels can hit back and merchant ships have escorts who try to force U-boats away using deck guns to stop a surface attack and depth charges against the submerged subs. Stay topside too long and the airforce will join you for a one-sided shoot out. There are even battles with other subs which can be conducted from an 'outside view' in a slow, almost balletic, dog(fish) fight.

Das Boot has both realism and fast fighting. The control screens are well drawn and animated. The vector 3D battles, while far from stunning add realism to the battles. There is an annoying lag between screens – time is frozen so it's no disadvantage – that breaks the atmosphere that the rest of the game works so hard to establish.

Das Boot's cat-and-mouse style will drag for those who seek instant thrills. Here you have to track down trouble, then attack before it gets out of hand. The hunt essentially focuses on navigation, whilst scanning the radio waves and the skyline. Planning pays off and work put into tracking a ship pays far greater dividends than blasting the first ship you sail across. Then, the long hours of tracking pay off in a few brief seconds of destructive fury! ***Trenton Webb***

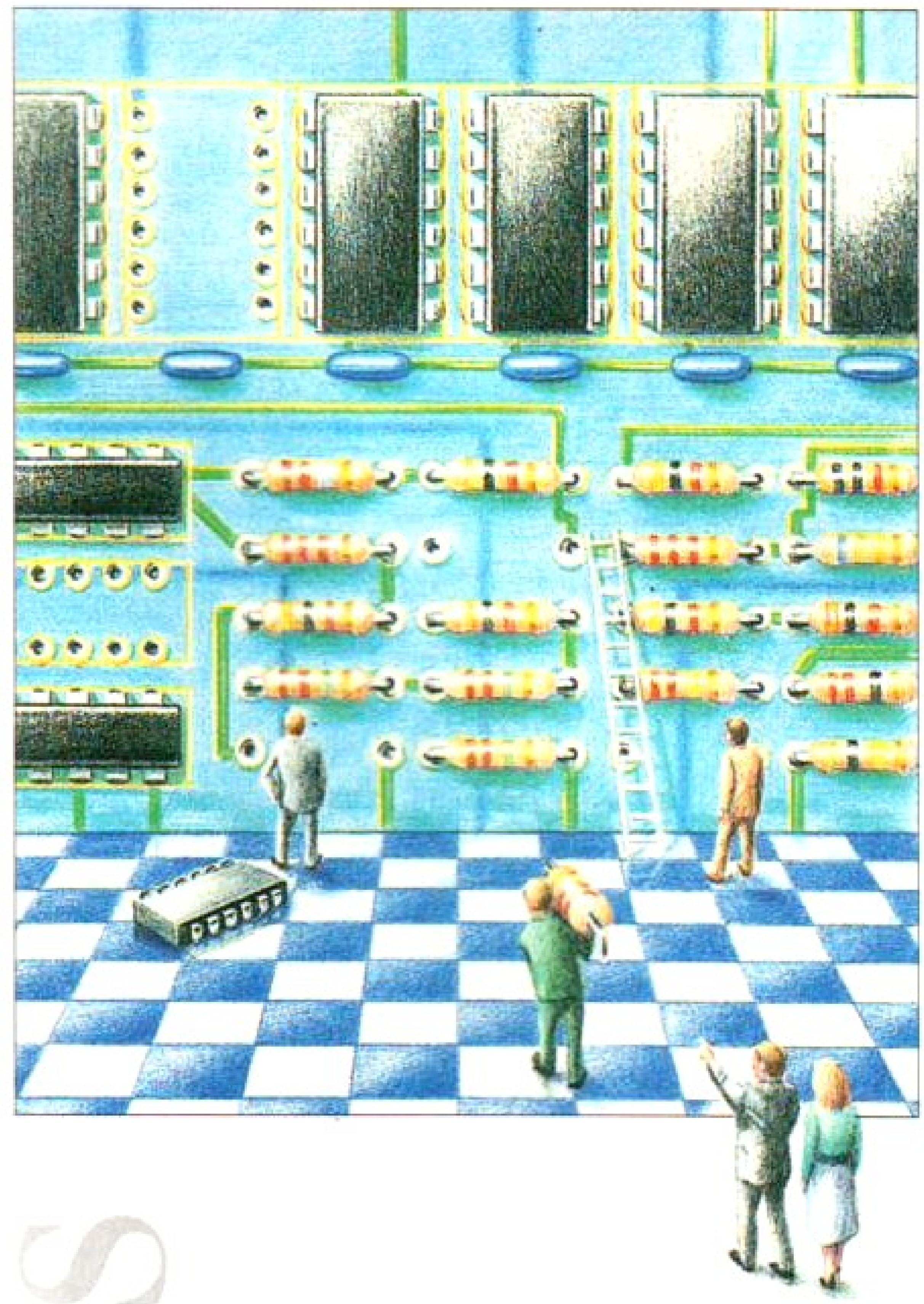
VERDICT

- **Strong mix of 3D and flat screens.**
- **Gameplay relies more on stealth than strength, so there is little initial action.**
- **A touch pricey at £35?**
- **Variables add longevity to the low number of missions.**
- **Lag between screens disrupts the otherwise excellent realism.**




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SP OUTRO

If Page 47 was Screenplay Intro, this must be SP Outro!

Sreenplay 'outro' (SPOutro) is the little bit of Format where all those irritating loose ends are neatly tied together – or at least that's the theory! So all those games that came in too late for a full review this ish', or were too awful to merit a page, get the treatment here.

SPOUTING OUT!

Budgets, of the economic kind, are a pain at the best of times. This time around they've managed to totally mess up all the software prices. Life had finally quietened down, the software houses had settled on £25 for full-price software and budgets for a tenner or less. The increase of 2.5 per cent on VAT, though, has managed to throw everything into chaos.

Now £9.99 games will retail at £10.24, and those at £29.99 should sell for £30.74. Now the software industry is not to blame for the VAT increase and have to respond to what is laid down by government. Naturally, they have to keep their profits up, especially in times of recession, if they are to stay in the software publishing business.

The underlying worry is that this may mark a general increase in software prices, quietly being introduced over the next few months. This fear can only be reinforced when hearing Richard Steele, head of software distributors Centresoft, commenting in *Computer Trade Weekly*, "I think firms will revise their pricing and product prices will move up to, say, £10.99 or whatever. I don't think these unfamiliar prices will last long"

There was an argument, which had finally died down, about game prices. People were happy to pay £25. But VAT hiking the price to £25.50 cannot justify slapping another 50 pence on top to make the price more convenient for shops and consumers. This is not inevitable, hopefully.



Mirror Image £7.99

Cinemaware have created *Rocket Ranger* in the very best B-movie tradition, and it is quite possibly the best game they ever wrote.

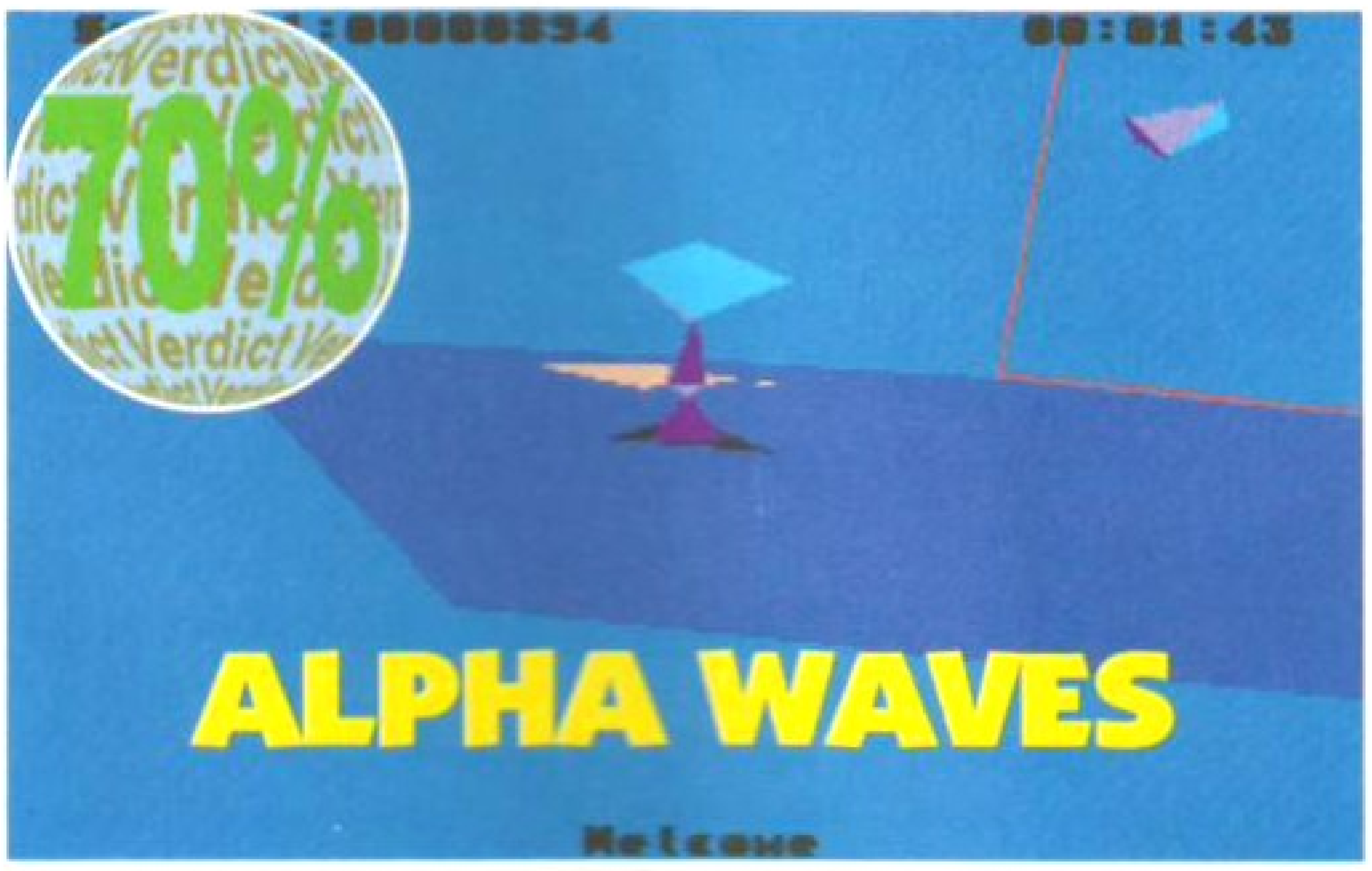
You control an all American hero, Rocket Ranger, who flies around on a jet-pack bashing the Nazi menace. It set new standards for graphics and sound in Amiga games, that have rarely been bettered. Using an animated movie-style, the game puts you in control of the super fly guy in a number of arcade-style sub-games. These may not be that complex, but they are tough enough to keep most folks bashing for hours. With such brilliant sound and vision, the only downer is the disk swapping and long loading time; but at this price who cares?



Mirror Image £7.99

Now, the game that launched a thousand sprites, namely *Speedball*, can be put to the test, as it gets a budget outing. *Speedball* was a mould-breaking future-sport sim where the Cyberpunk image was played to the hilt, using outrageous 'reflective steel' backdrop graphics and digitised sound.

Two teams go head-to-head in a handball/ice hockey hybrid, where the loser goes home in an ambulance. For the first time a sport sim on the 16-bit machines looked like it belonged there, play was fast and the skill-development potential immense. Since then, sport games have changed radically, there has been the *Kick Off* phenomenon and even *Speedball II*. These younger titles steal their thunder from *Speedball*, which is starting to show its age but remains a great competitive game.



Infogrames £24.99

In a month where Format has been examining 3D in its many guises, *Alpha Waves* still stands out as a truly weird 3D game. You control a polygon top which is viewed from behind.

Hanging in 3D space are coloured trampolines, which form a trail to an exit. You have to bounce the top out of the exit. With a 'fire' thrust control the entire world is rolled around by using the joystick, which behaves like a drunken camera, pivoting and then righting itself.

The only constant from which your relative position can be judged is a light sourced shadow. Very odd, very good to watch, it follows very much in the footsteps of *E-Motion* and *Vaxxine*.



INTERNATIONAL ICE HOCKEY

Impulze £24.99

Talking of *Speedball*, Ice Hockey is about the nearest real sport to it. It's fast and has a tendency to be very violent, so it should translate well to a computer format. *International Ice Hockey* however is not the definitive translation.

It captures the speed of ice hockey but none of the control. The players are hard to control regardless of the options selected (turn speed is variable, when playing formations and there are a variety of choices as to which player you control) and this is vital if a speed sport sim is to work. To compound this the graphics are limited to say the least with the perspective stretched to an unseemly angle. Still, there's a league facility and it is possible to get thrown in the sin bin!

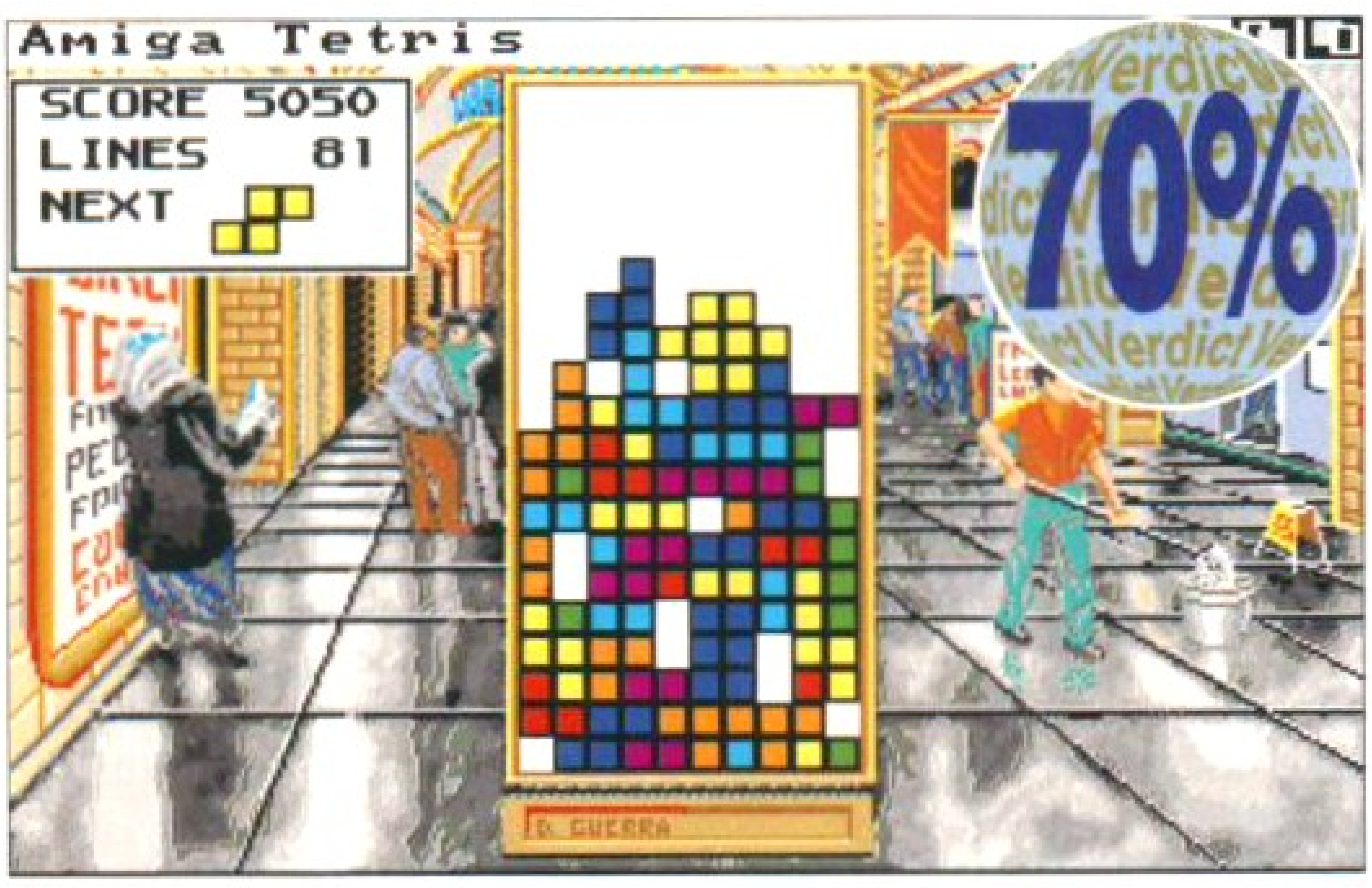


QUADREL

Loriciels £19.99

More oddness but this time from Loriciels. *Quadrel* is a puzzle game that is played over a grid system. Using four colours you must fill an entire grid so that no one colour is placed adjacent to itself. It is dead easy when it is in solitaire mode, you can play with friends or against the computer – when it gets much more complex.

Simplicity is often a boon in puzzle challenges but this one is rather too simple and lacks the solid depth of strategy. An amusing diversion nonetheless, for a while at least.

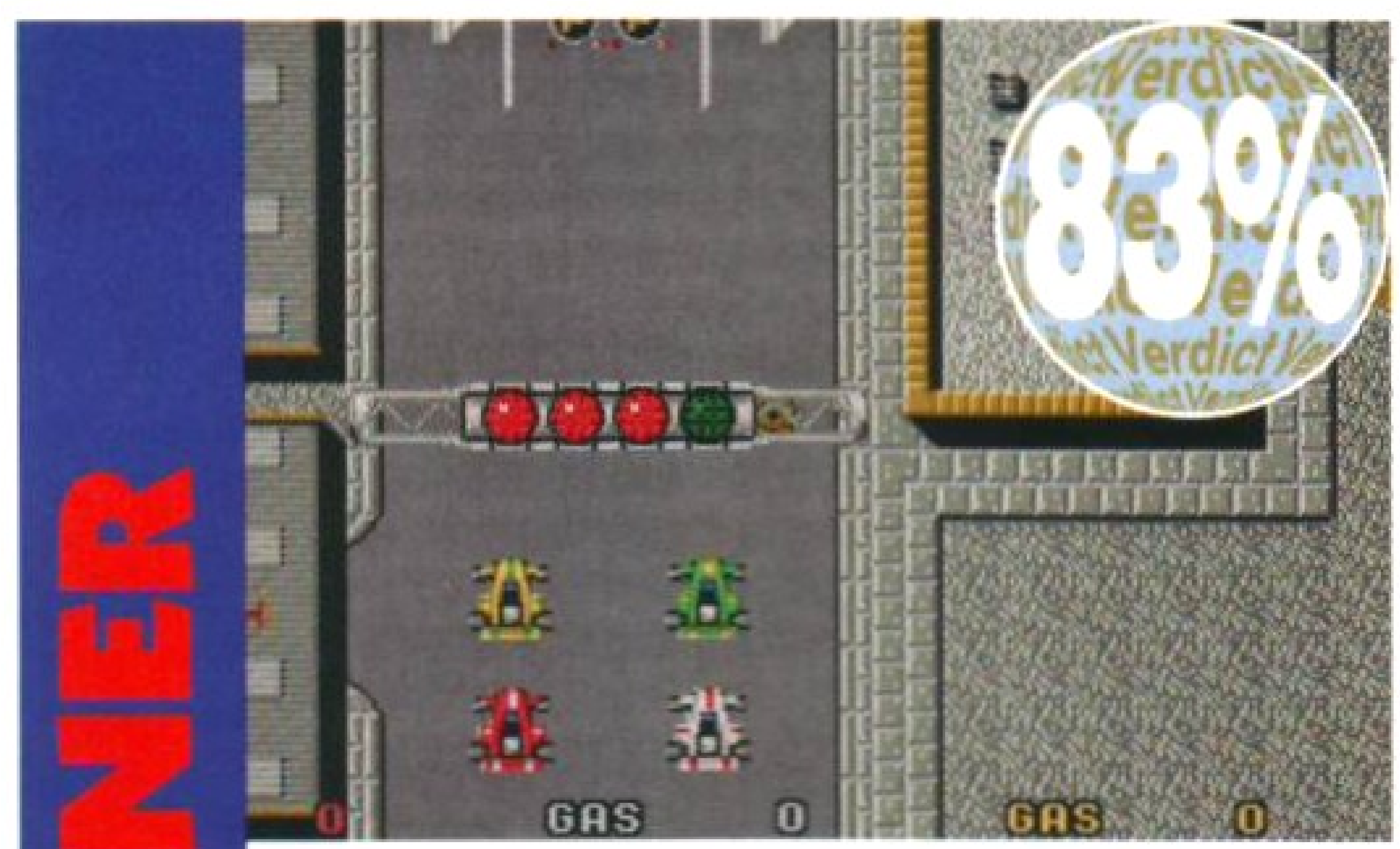


TETRIS

Infogrames £24.99

Another old soldier making a come back is Tetris, only this time there has been a complete reworking of the game. If you've been living in a bunker for 20 years and don't know, Tetris is a shape game where falling four block segments have to arranged to form complete lines. These disappear and you earn points. Simple addictive stuff, it looks boring to watch but is monumentally addictive. Sweet as this version is, it may have missed the boat – by about three years.

COMPILATIONS CORNER



MONSTER PACK

Psygnosis £20.99

In the history of games *Shadow of the Beast* (AF4 78%) will go down as the title that sold a legendarily number Amigas. The graphics were exquisite but the gameplay was outrageously tough, but now Psygnosis give you the chance to relive this classic along with the space-adventure epic, Infestation (AF10 89%) and the *Super Sprint*-style overhead-racer *Nitro* (AF19 84%).

All are constructed with all the flair Psygnosis have to offer. There may only be three games on offer in the pack, but *Beast I* and *Infestation* are almost unfinishably big. *Nitro* is a pleasant diversion too.



WINNING TEAM

Domark £29.99

Since Domark signed up the rights to all Tengen's coin-ops they've brought some bravely different games to our screens. Winning team brings this batch together with *Klax* (AF13 88 %), *APB* (AF5 81%), *Escape from the Planet of the Robot Monsters* (AF11 82%), *Cyberball* (AF11 71%) and *Vindicators* (AF1 81%). The games range from blasting with *Vindicators*, silly shooting with *Escape* and puzzle brilliance in *Klax*.

If refreshingly different coin-ops are your bag then check it out. None of the games alone have massive lasting interest potential (except *Klax*) but for short bursts of intense play, they really come into their own.

BOTTOMS UP

It's all very well knowing what's going on at the top but what about the more modest positions? Well here's what's happening at the bottom of the All Price Top 200:

191 Hot Rod Activision £24.99
192 Falcon Mission Disk 2 Mirrorsoft £19.99
193 Sega Master Mix US Gold £24.99
194 Wrath of the Demon Readysoft £29.99
195 Power Drome Electronic Arts £24.99
196 Magnum 4 Ocean £29.99
197 Kid Gloves Millennium £19.99
198 Manix Millennium £24.99
199 Line of Fire US Gold £24.99
200 Locomotion Byteback £6.99

... isn't ancient history fun!

Warhead II

So much for the peace dividend. Last month five games directly inspired by real world-war technology made the charts; this time around it's 10! *F-19, A-10, 'Nam, UMS II, Das Boot, MiG 29, Blue Max, M1 Tank, Advanced Destroyer* and *Wings* all recreate some of mans less pleasant moments in history, and we're buying them in droves. What will Mrs Whitehouse say?



Pure Gold

Well we're rather chuffed. A *Format* Gold Top three and a total of eight in the Top 30. As satisfying as it may be to be a good tipster, it is far more heartening to see quality games getting the recognition they deserve. Congrats software buying peeps, you're obviously highly astute beings.

Licence to vanish?

Birds migrate north for the summer, squirrels hibernate for the winter, but where do the big licences go in the summer? This month there are only three true licences – coin-ops or movies – showing out in the charts: *Turtles, Super Monaco* and *Viz*. Interestingly however there are a number of original game sequels doing well, as pseudo licences: *Speedball 2, SWIV* (sequel to *Silkworm*?), *Final Whistle* and *Kick Off 2, Turrican 2, Bard's Tale III, UMS II, Chaos Strikes Back* and *Pro Tennis Tour 2*. Is the licence dead or is it just on holiday?





BELOW

It's hard to cram a quart into a pint pot, it is also extremely difficult to force about a billion different games a month into every Screenplay. Here are our multiple choice excuses as to the reason why certain games are not reviewed (delete as applicable):

Final Whistle Anco –
(a) The review copy got knacked. (b) Sagittarius is rising in Saturn. (c) It's a game of two halves.

Panza Kick Boxing US Gold –
(a) We only saw a French version. (b) Gary is a Devil. (c) Oddball hit me!

THE AMIGA FULL PRICE CHART

Pos	Title	Publisher	Price	Rating
1 (1)	**Lemmings**	Psygnosis	£24.99	FG92%
2 (4)	**Speedball 2**	Image Works	£24.99	FG94%
3 (2)	**SWIV**	Storm	£24.99	FG92%
4 (5)	**Final Whistle**	Anco	£12.99 S	see below
5 (-)	**PGA Tour Golf**	Electronic Arts	£25.99	FG90%
6 (-)	**Viz**	Virgin	£24.99	61%
7 (-)	**Power Up**	Ocean	£29.99	Compilation
8 (12)	**Kick Off 2**	Anco	£24.99	FG94%
9 (9)	**Panza Kick Boxing**	US Gold	£24.99	See Below
10 (3)	**Turrican 2**	Rainbow Arts	£24.99	80%
11 (6)	**F-19 Stealth Fighter**	Micro Prose	£29.99	FG91%
12 (7)	**A-10 Tank Killer**	Sierra On Line	£34.99	75%
13 (10)	**Fists of Fury II**	Virgin	£29.99	Compilation
14 (13)	**Powermonger**	Electronic Arts	£29.99	FG94%
15 (-)	**Bard's Tale III**	Electronic Arts	£25.99	69%
16 (-)	**'Nam**	Domark	£29.99	88%
17 (-)	**Super Monaco Grand Prix**	US Gold	£24.99	83%
18 (8)	**UMS II**	Rainbird	£29.99	77%
19 (-)	**Das Boot**	Mindscape	£29.99	79%
20 (17)	**MiG 29 Fulcrum**	Domark	£34.99	FG90%
21 (-)	**Blue Max**	Mindscape	£29.99	65%
22 (14)	**Hollywood Collection**	Ocean	£24.99	Compilation
23 (15)	**M1 Tank Platoon**	Micro Prose	£24.99	71%
24 (-)	**Monster Pack Vol 1**	Psygnosis	£20.99	Compilation
25 (-)	**Advanced Destroyer Simulator**	US Gold	£24.99	68%
26 (25)	**Chaos Strikes Back**	Image Works	£29.99	89%
27 (28)	**Lotus Turbo Challenge**	Gremlin Graphics	£24.99	89%
28 (16)	**Pro Tennis Tour 2**	UBI Soft	£24.99	82%
29 (-)	**Wings**	Image Works	£29.99	79%
30 (20)	**Teenage Mutant Hero Turtles**	Image Works	£24.99	35%

Chart compiled by Gallup Ltd © 1991 European Software Publishers Association.

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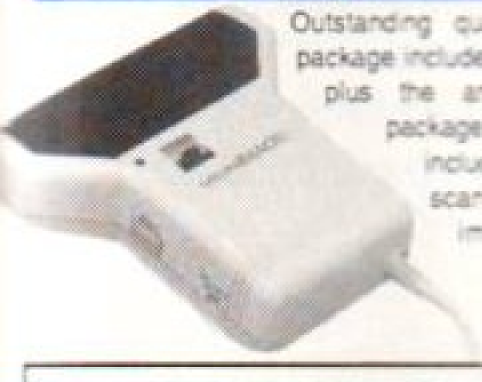


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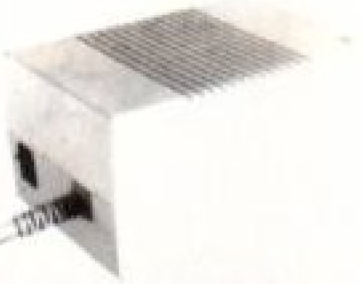
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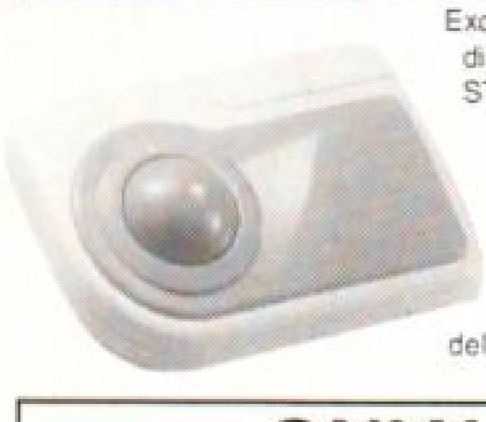
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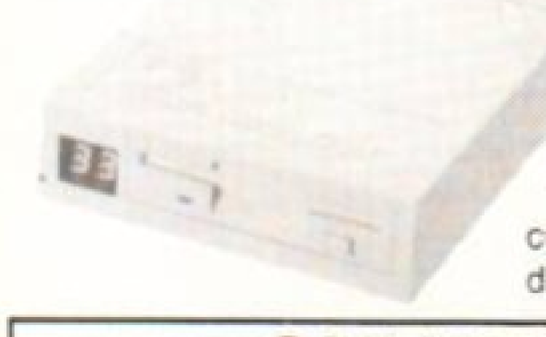
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DISNEY'S DUCK TALES THE QUEST FOR GOLD

TITUS ■ £24.99 Joystick



Most of the games released on the Amiga can be placed in to two categories. The mindless blast with all the weapons that you can lay your hands on, or initially confusing mind-games that take a lot of brain power to figure out. This is all very well if you're a computer-game freak who can get round all the necessary joystick and mouse wielding manoeuvres, but what about something for the little 'uns who can't quite get as much of a grip on technology?

Step forward Titus to the rescue, with the first in a series of games based on Disney characters aimed directly at the younger games player.

All Quacked Up

The Quest for Gold is an episode based on the highly successful *Duck Tales* cartoon series. The player is in control of the McDuck clan in a worldwide competition to try and collect as much wealth as possible in 30 days. There are various ways of doing this: Uncle Scrooge can dive into the money bin to try and find a rare coin, invest some dosh in the stock-market or travel to far-off lands to try and search out lost treasure.

The major proportion of the game is taken up by this international treasure hunt. Various locations around the globe have their own special prize, which is hidden in one of three types of terrain: the jungle, the mountains or the caves. As well as finding treasure, the McDucks can go on a safari photography expedition to boost cash.

Once an amount of cash has been amassed it's off to the island of Macaroon, where the famous giant scales are used to judge the leader in the money race. The competitor with the most money on the scales at the end of the game is the winner and is duly named as *Dime Magazine*'s Duck of the Year.

Duck and Dime

Duck Tales isn't the most challenging Amiga game around, but then again it's not really supposed to be. The game is aimed at the younger player and contains all the ingredients to keep children happy for hours. The graphics are really bright and colourful, capturing the feel of the original cartoons to a tee. The sampled speech and sound effects add to the whimsical atmosphere even more, giving the whole package the entertainment of a Disney cartoon.

Some of the sections will seem rather taxing to younger children, but with a little time and practice, even the least proficient gamers will start to make progress. The educational value of the package isn't as high as other children's games, but as a piece of wholesome entertainment for the junior members of the family it's just the thing. ***Maff Evans***

Mountain Climbing



Treasure that is hidden in the mountains needs some pretty nifty leaping and rope-work to reach, since the rocky cliffs are fraught with danger from dangerous ledges and wild animals. If this wasn't enough trouble, some of Flintheart Glomgold's henchmen will try to knock you from the mountainside, hindering your quest for the loot.

Cave Exploration



Underground caverns are spooky places, so the treasure hunters need to find their goal quickly before their torch runs out. Don't be rash in your explorations though and use your map, since a bottomless pit could be around the next corner. And what's that noise? Could it be the spooky mummy prowling the caves? Ooer! I hope not!

Jungle Trekking



Scrooge's nephews: Hughie, Dewey and Louie must make their way across jungle rivers and branches to reach the gold. Along the way there are snakes, panthers and mischievous monkeys who will send the poor little ducks into the water if roused. Fortunately the friendly hippos can help them across the swampy terrain at difficult times.

Photography Shoot



A far-flung continental safari trip, to take pictures of rare animals, could be just the thing for pulling in a bit of extra cash. Webby must earn her photography merit badge and make the most of her limited supply of film to get the best possible pictures. Rare animals have to be caught quickly, otherwise they may not appear again!



VERDICT

- **Cheerful graphics and jolly sound capture the cartoon feel well.**
- **Loads of variety will keep even the most fidgety of young minds occupied for hours.**
- **Not immensely challenging for experienced players, but pitched just right for the little uns to get stuck into.**
- **A fun game which will appeal to young children in a big way.**

85%

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GAME Busters

WINNERS BOX

This is the bit all would-be tipsters read first, I know. So without further ado, let's get on with the prize giving.

Matthew Brown is a winner, for his tips and maps for *Prince of Persia*. James Bowman, wins a voucher for his guide to *Speedball 2* – a lot of frustrated future sportsters will be relieved! And the third ... well if the person who forgot to tell us who he was with the *Total Recall* tips can get in touch, he may find something to his advantage!

If you think that you can provide some wonderfully drawn *Deluxe Paint* maps, a superbly written players guide or even some tips to someone in Helping Hand, then get them sent in to

**GAMEBUSTERS,
Amiga Format, 30
Monmouth Street,
Bath BA1 2BW.**

Finally, I've printed all the *Lemmings* codes, so there's no need to keep sending them! I tell you, I've had thousands of the things!

Ah! The joys of spring! The winter weather has departed, the sun's shining and all you Philistines are indoors playing computer games! The only way to get you out into the sunshine is for **MAFF EVANS** to help you finish the games so that you've got no reason to play them any more, then you'll have nothing to do except enjoy the weather. Come on it's good for you!

TOTAL RECALL

Follow these instructions and you will beat the *Total Recall* first level! First, go right, collect the gun, then run to the right and jump over the first lift. Keep running to the next lift, go up three times and walk onto the lift that is waiting when you arrive. Go up, then left and collect the gun. Now go right to the next lift and go down once.

Go onto the next lift, and go up as far as you can. Walk right, off the lift and run right to the next lift, picking up the object on the way. Go up on the lift, run right and go down on the first lift. Keep running right, jump over the first lift and go down three times on the next one you come to. Run left, go down on the lift and run left again to collect the object. Run right to the first lift and go up, then get to the next lift and go up twice. Run right and go up on the lift once, then run and jump right. Collect the heart, run right, drop down through the hole and run right to the exit.

BACK TO THE FUTURE III

Ooh, I don't know! No sooner is a game in the shops than people have sussed out the cheat mode for it. What happened to good, honest, old-fashioned hard work to finish a game? Well it seems that the people wanting to cheat at this one have to admit something to themselves...

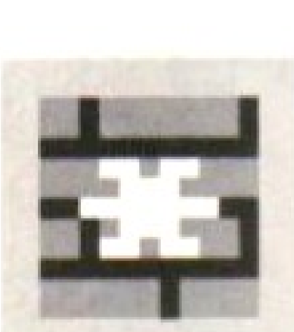
To beat each level, type in the following codes while the story board is showing:

Level One – ROTTEN CHEAT
Level Two – LOUSY CHEAT
Level Three – LOW DOWN CHEAT

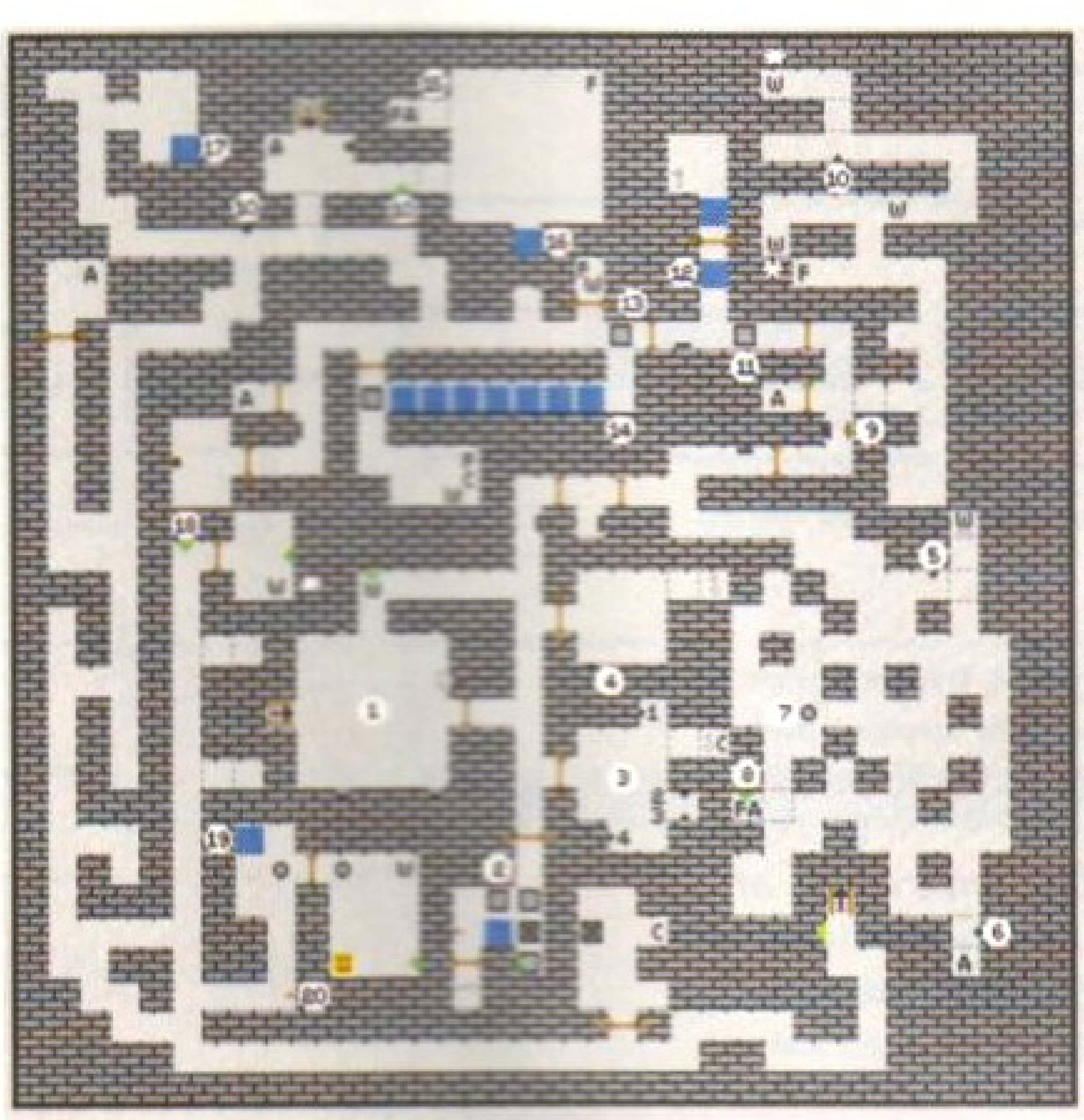
**J Staddon,
Barnhurst, Kent**

DUNGEON MASTER

All those especially tasteful people who bought the absolutely marvellous *Screenplay* book (that's enough blowing your own trumpet – Ed) are owed a bit of an apology. It seems that there was a flaw in the printing of Bryan Stephens' superb *Dungeon Master* tips. Unfortunately, Level Five's map was reprinted in place of Level Six! Never mind, let's rectify the problem right now by printing the correct map.



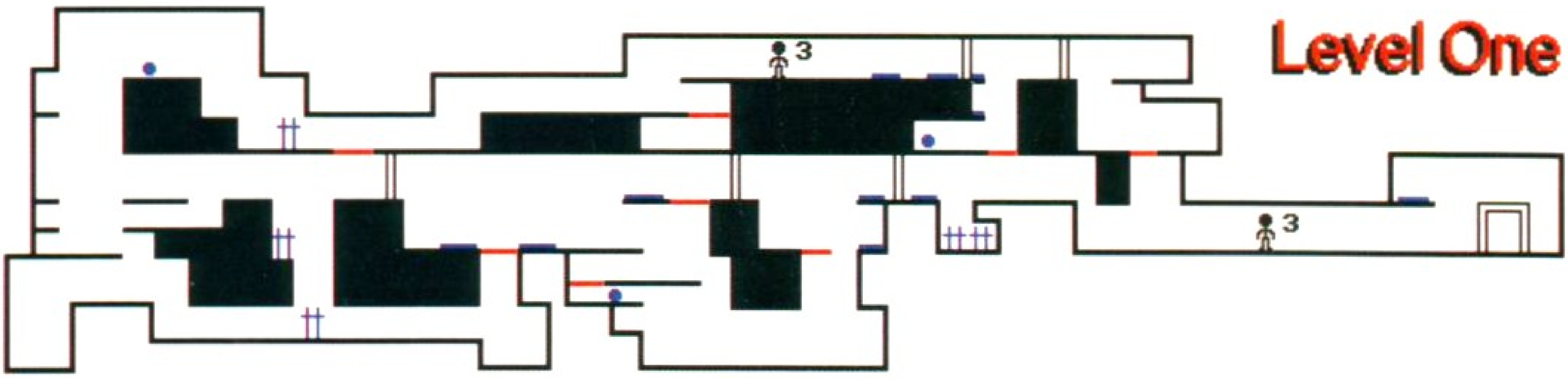
**Items of interest:
Vorpal Blade (+4 mana)
Yew Staff (+4 mana)**



1 Place gem, bow, gold coin and mirror in alcoves to open door and get key.
2 Pull lever. PLACE item in transporter, get key, walk into transporter and press button to close pit.
3 Press buttons in order.
4 Insert gold coin in hole in wall.
5 Press button to open wall at 6
6 Press button to open wall at 5
7 This floor button opens the wall at 8. 'Freeze' some skeletons on it with magic box.
8 Press button to open wall.
9 Press chain ring to open wall.
10 Press button to open wall.
11 Pad shuts door behind you.
12 Cast ZO spell and step through transporters. Timing is essential.
13 This pad opens the door shut by the first pad.
14 Throw item down corridor so it lands on the pad at the end and opens the door.
15 Walk through wall.
16 Transporter to level 5.
17 Short cut to 19
18 This button opens and shuts door and also the two walls down the corridor. The button in the room just operates the door.
20 Pull lever to open door, step 4 left and 2 forward quickly.

PRINCE O

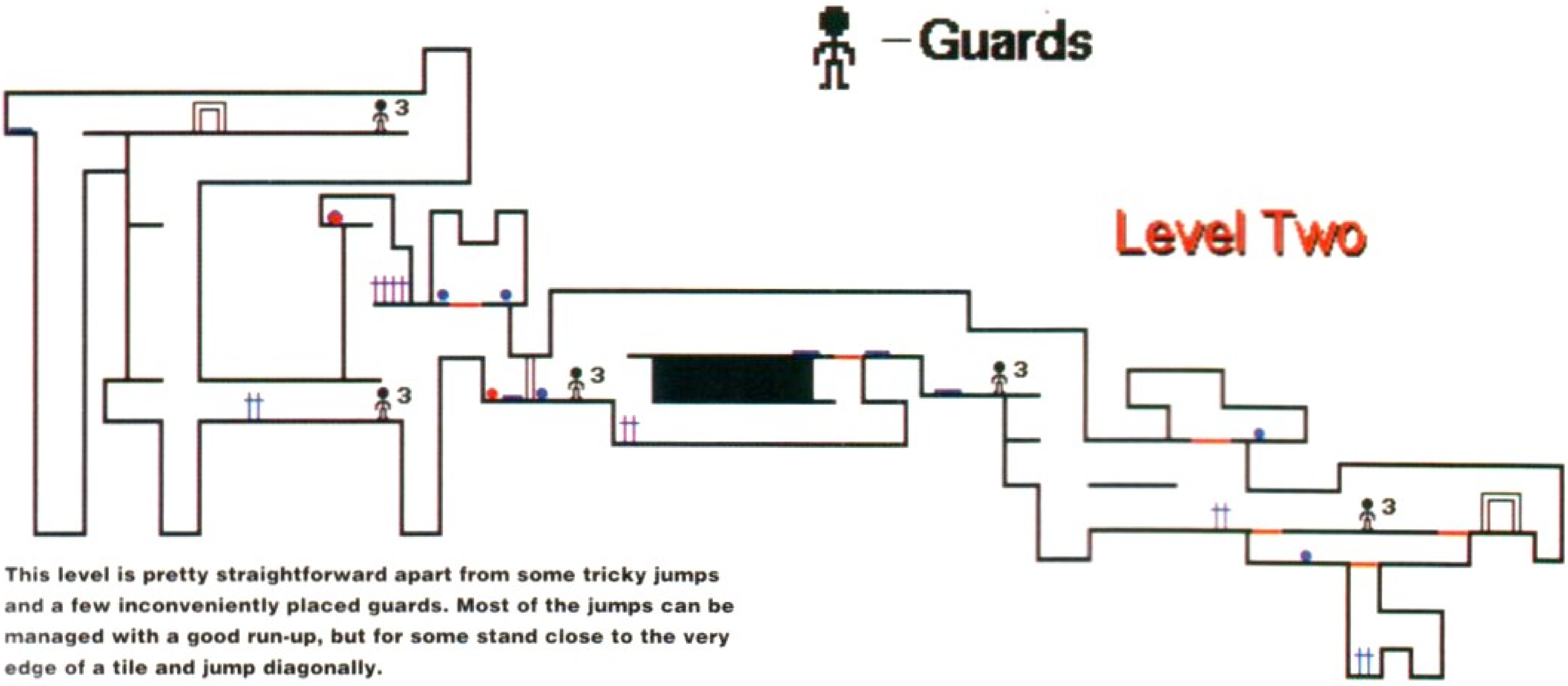
Fans of the romantic, mysterious East were seduced by the superb animation of this platform adventure game, but playing the game well is another matter. Are you one of those adventurers that is having trouble getting through the levels? Well fear not, traveller! Gamebusters is here with maps and tips to the earlier levels to help you get started in your quest. That should sort out your troubles (apart from that one ... you know ... nudge, nudge).



The key to completing Level One is getting the knack of jumping sussed out. The idea for most of the jumps is to get a decent run-up and push up when you are about two tiles away from the drop. This should see you safely across most of the gaps.

Another skill you need to master is sword fighting. Level One's guards don't pose too much of a problem though. All you need to do is stand in front of the guard (making sure your sword is drawn) and press fire just as he is about to move forward. This should keep you safe from attacks and score easy hits on your opponent. One point for you to remember is to look for loose tiles – they could lead to secret rooms with extra energy.

- Pressure Pads
- Loose Tiles
- Spikes
- Potion – Increases energy
- Decreases energy
- Restores energy
- Razor Gates
- Guards

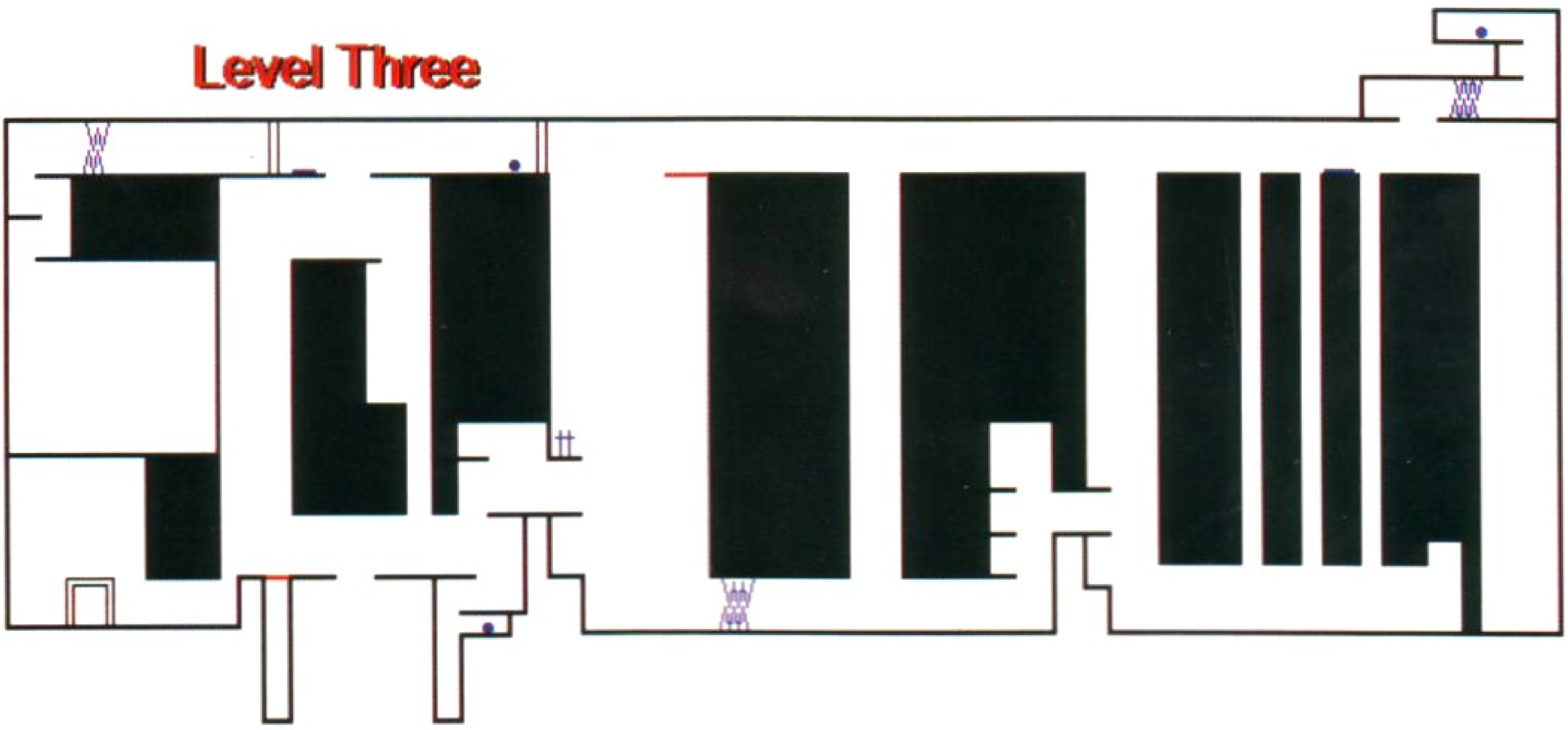


This level is pretty straightforward apart from some tricky jumps and a few inconveniently placed guards. Most of the jumps can be managed with a good run-up, but for some stand close to the very edge of a tile and jump diagonally.

One annoying thing is the presence of spikes. Make a note of their positions on the map and move close to them so that they appear. Once you can see them, run through to safety. The more adventurous of you could just run along as normal and jump about two tiles before the spikes appear.

F PERSIA

Level Three



This is a tough level, you will come across some pretty devilish obstacles such as the skeleton and the razor gates.

To beat the razor gates, use small steps to get close to them and wait for them to close, at which point you should run past.

The skeleton is a tricky opponent, since he can't be killed. What you need to do is knock him over the edge, climb down after him and beat him back so that he falls through the loose tile, allowing you to get past and complete the level.

Some pretty neat jumping is required to beat this level. One particular section requires you to run and jump across numerous gaps which are spread across four screens. The only way to get across is to practice your jumping time and time again until you get it just right. Well, you know what they say – practice makes perfect!



LEVELS FIVE AND SIX

These are pretty easy. The only things that you have to look out for are a couple of rather tricky guards who will try and force you over the edge. Just be careful and use your common sense and you should be able to conquer them.

LEVEL SEVEN

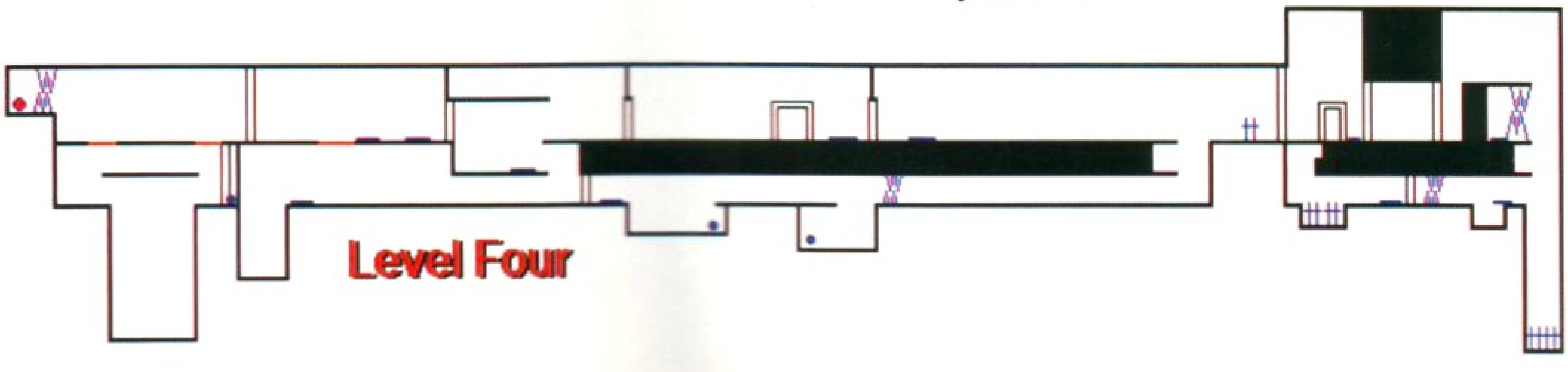
The beginning of this level is rather hectic and needs some precise timing to beat.

As you plummet back towards the dungeon section from the palace, keep hold of the fire button to grab the platform and pull yourself up onto it. Once you are up, run along the platform and jump to the one opposite. From here on in it's quite simple until you come to a section which requires you to jump over a pressure pad. If you hit the pad a portcullis will close in front of you, blocking your route. Careful timing is required to leap the pad and avoid the spikes behind the barrier.

Next is another tricky section, which requires you to drop from platform to platform (which is more difficult than it sounds). Make your way through the razor gates until you reach the yellow potion. This slows down the action, allowing you to drop to the exit.

Matthew Brown,
Telford, Shropshire

This is the first of the levels inside the palace and is actually a lot easier than Level Three! The only real problem is the mirror, which you have to jump through. This produces a mirror image of yourself, which causes you trouble on later levels.



Level Four

Winner!

Mindscape's incredible portfolio of computer games goes from strength to strength. The accolades heaped on Captive justify its position as 'Overall Game of the Year 1990' and 'Adventure Game of the Year 1990'- both voted by the UK Computer Game Industry.

Captive has achieved true cult status by going on to win the Tilt D'or in France. Amiga Format Magazine voted it Role-Playing Game of the Year. Captive is Ace rated 930, classified Zzap! Sizzler, a C&VG Hit, a Commodore User Screen Star - the list goes on.

Currently available on the Amiga and the ST. Captive will be released for the PC in April.

Mindscape International Ltd, The Coach House, Hooklands Estate, Scaynes Hill, West Sussex RH17 7NG. Tel: 0444 831 761.



C+VG HIT!

MINDSCAPE

SPEEDBALL 2

An exciting biff, bang, pow, crunch sports game this may be, but for those of you having trouble blasting your way to the top of the league it's just downright frustrating. Put away your skinny shinpads and strap on this metallic body-armour of a set of tips.

IN THE GYM



Building the most powerful team is basically a matter of getting your priorities right. Firstly, you need to boost the whole team with Attack, Power then Speed. Next go for Defence, Stamina, Aggression and Intelligence.

When improving specific positions, make note of the following requirements:

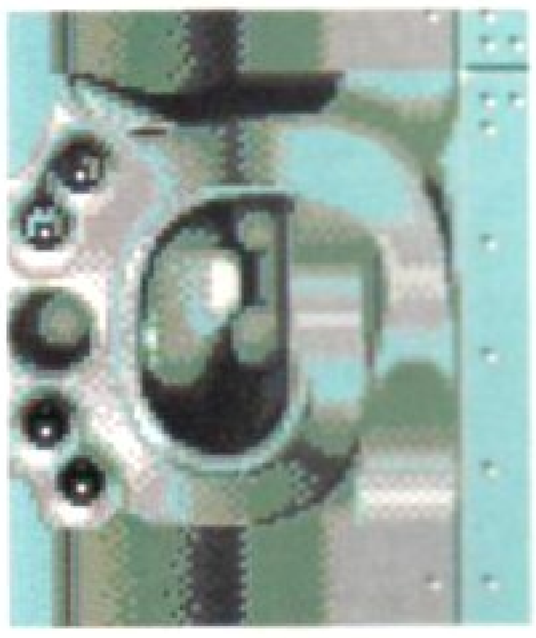
Defenders: Need extra Throwing and Attack skills.
Midfielders: Need extra Throwing, Attack and Defence.
Attackers : Need high Intelligence, Attack, Defence and Throwing.

When boosting specific players, it is important to give the goalie high Intelligence, Attack, Defence and Throwing, while the centre-forward is better off with Intelligence, Speed and Stamina.

In order to take on the higher teams, you will need to make sure that all your players have a healthy power rating, otherwise you will just get smashed up!

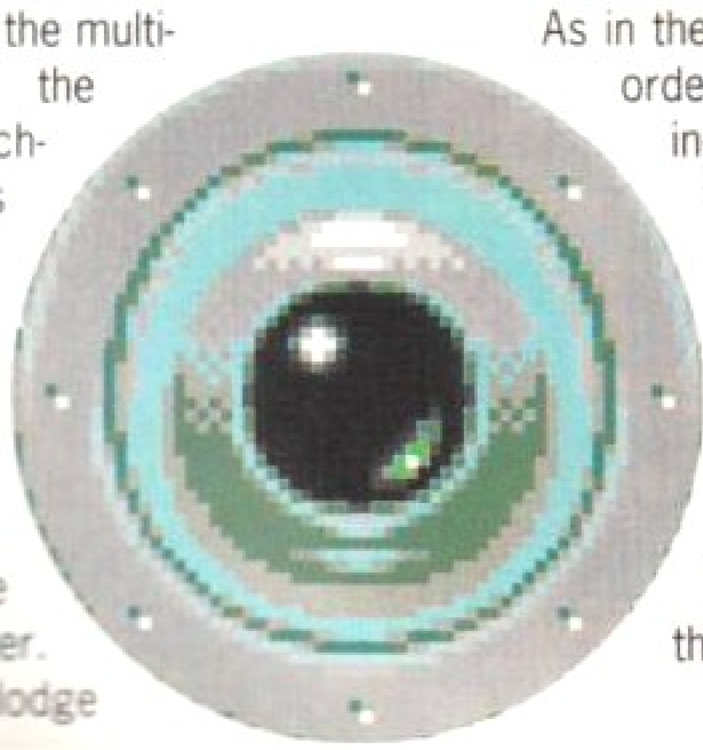


PLAYING THE MATCH



In order to pull a decent lead, it's a good idea to go straight for the score multiplier. However, take care when playing against intelligent teams, as they will try to muscle in and use the multiplier themselves. The best bet is to hurl the ball through the multiplier and stand by the scoop continually punching. That way you will knock out anyone who walks close or throw the ball back if anyone tries to cancel out your multiples. If in doubt, **GET THE BALL AWAY QUICKLY!**

If you're confident with both your speed and aiming, go for the Electrobounce. This is particularly useful when you have the multiplier in your favour. Get the bounce and fire directly at the goal, since the ball will fly straight past the keeper. If there is a defender in the way though, try to dodge him (unless you have a multiplier, in which case the ball will tackle him anyway).



One of the best ways to a high score (particularly with higher teams) is to go for the stars. Try to complete the line whenever possible to ensure a score that can't be cancelled – it may be enough to sneak the lead!

Money is very important, so collect as much as possible at all times. Keep going for it until the supply for that match runs out, then you can increase your team stats by a significant amount.

If time is tight and a draw looks imminent, fling the ball at the bounce domes when you can, this scores points that can't be cancelled out (like stars) which could swing the balance in the dying seconds of a match.

Don't move your goalie unless it's vital. He will be in a good position to block until he's closest to the ball. Then thunder out to meet it and throw it as hard as you can up-field.



THE LEAGUE

That old sports adage – It's not whether you win or lose, it's how much you win by that counts – comes into effect here, since league positions are not only counted by wins, losses and draws, but by the points scored in matches (one league point for every 10 game points scored). For this reason, don't just sit back on a comfortable lead – boost your points wherever possible.

THE CUP

The Cup competition is extremely tricky and should therefore only be tackled by experienced players who can score a quick blitz to rack up enough points to form a cushion.

Collecting money is an absolute must, since you could meet a first division team as early as the third round and you will need to push your team stats up towards their level.

KNOCKOUT

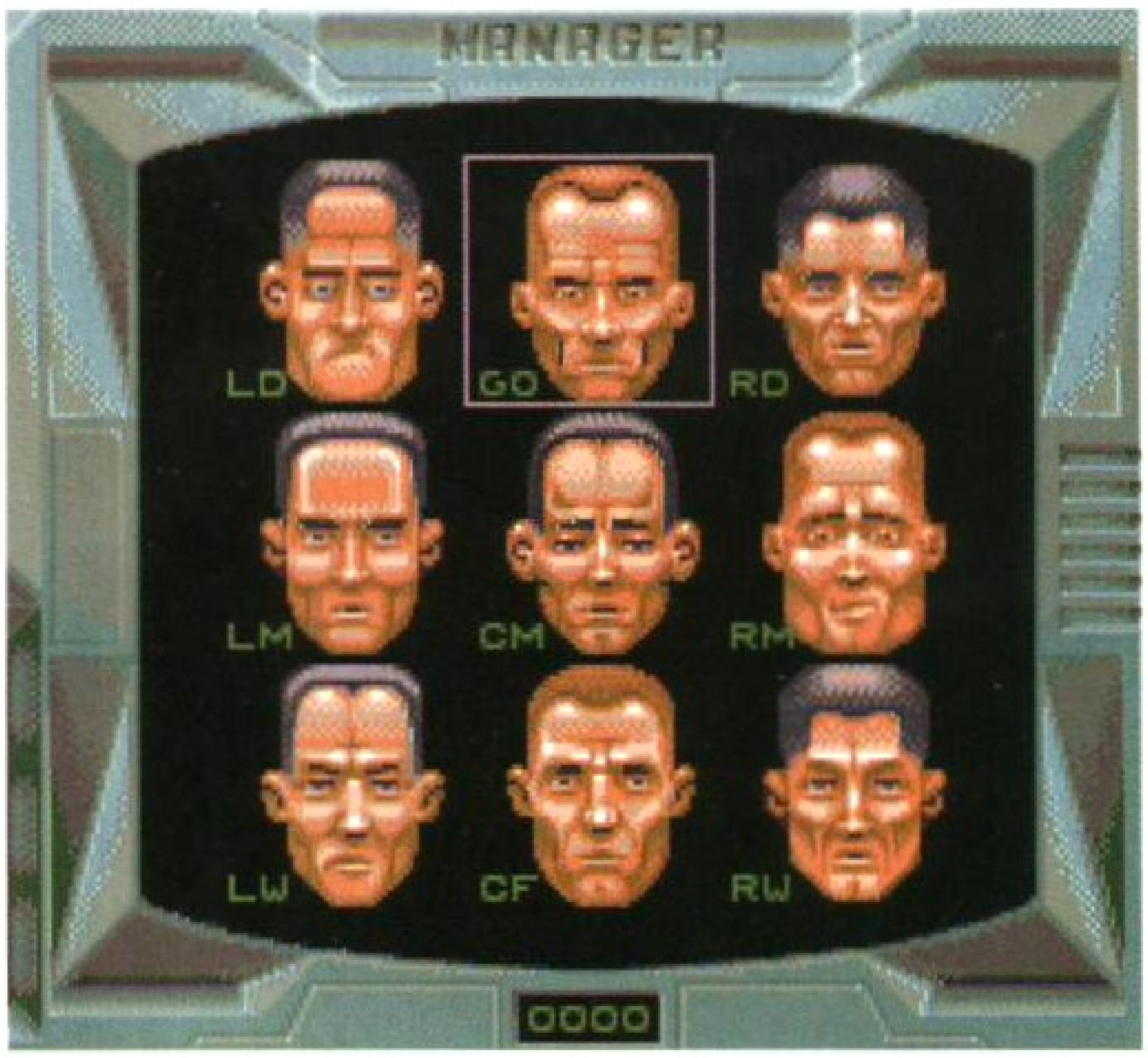
As in the Cup, you will need to collect as much money as possible in order to keep your stats up to the teams you will play. The increase isn't so dramatic here though – the stats rise by about one level per team.

MANAGER

The approach to a managerial game is very different to normal, despite the matchplay being very similar. Allocation of money, for example, alters drastically. Concentrate on Intelligence, followed by Attack and Power, to give your team the edge.

Continued overleaf ▶

SPEEDBALL 2



Star Players aren't really necessary in division two, but in the first they are crucial in any effort to reach the top of the table.

Incidentally, it may not seem a good prospect to be drawn against the stronger teams at the start of a competition, it's actually better to play the powerful teams first. Don't spend money on these matches, since you won't be able to improve yourself dramatically and your team members will probably be injured anyway.

Save your dosh for later, so that you can quickly build up your team and smash the weaker sides down.

GENERAL TIPS

TOKENS:

The best tokens to go for are:

Freeze: These stop the opponents moving, thus giving you an easy scoring opportunity.

Shield: So that you can charge downfield and score without getting decked by the opposition.

Transport Ball: Saves all that clever tackling and dodging!

Boost Stats: This gives your team a nice healthy (as well as cheap) rating increase.

Unless you are very sure of your abilities, don't go for the Manic token. This boosts both teams stats for about 10 seconds and usually works to the computer's advantage rather than your own.

One good (if a little sneaky) move is to wait until your opponent has electrified the ball, then use the Grab token to snatch possession!

STAR PLAYERS:

When playing the matches yourself, buy a powerful centre-forward as soon as you can (making sure that he has a high-speed rating). He will now be able to shift the ball forward quickly. Next go for a decent midfielder and defender (preferably a goalie) to obtain a good, balanced team early on.

James Bowman,
Brighton, Sussex



HELPING HAND

Another forum for readers having trouble with some of those lovely video-game thingies.

I recently purchased *Operation Stealth*, but unfortunately I am stuck! Please can you tell me how to get the envelope from inside the safe without being caught, or how to get out of the ropes and get through the rocks that block the exit to the tunnel? Also, does anyone know where the cigarette case is?

Kevin Whitley,
Wrexham, Clwyd

As unlikely as it seems, you are supposed to get caught when you've got the documents from the safe! When you are, just battle through the action sequences and if all goes well you should end up on a friendly sub. When trapped in the cave (how did you get to the safe without escaping the cave?) OPERATE the stones on the ground and USE the ropes on the metal object. You should now be free of your bonds. OPERATE the ground to find the pickaxe and OPERATE the pickaxe four times where the fresh air is coming from (to the right). You should then get to the swimming sequence.

You should find the cigarette case in the right baggage at the airport. Look for the name Martinez.

I have bought a number of games and would like some cheats. I need cheats for *Robocop* and *Batman the Movie*. In *Robocop* on Level One, a big robot comes on and kills me. Is there some cheat for infinite energy. *Batman the Movie* is downright frustrating. I can't get past Level One (again)! Is there a cheat for infinite lives on this game?

P Lavery,
Muswell Hill, London

Sure there are cheats! Robocop *is simple – start a game, press pause and type in BEST KEPT SECRET (including spaces). Now restart the game with infinite energy. Oh, and by the way, the big robot is called ED-209. It's important, so remember!*

You must be the only person that doesn't know the cheat for Batman! *Simply type in JAM on the title screen and keep hitting M until the screen flips over. Now start the game and you'll have infinite lives.*

As I have recently bought the Amiga 500 Screen Gems pack, I thought that the *Screenplay* book was just the thing I needed to get me started. I immediately purchased the book, but only *Shadow of the Beast* was covered out of the pack. Please can you give some hints for beginners?

Jean Purves,
Glasgow, Scotland

The cheat mode to Back to the Future II, *one of the games in the pack is to pause the game and type in THE ONLY NEAT THING TO DO (including the spaces). You will now have an infinite supply of Martys. You can also skip levels by pressing Shift and Z.*

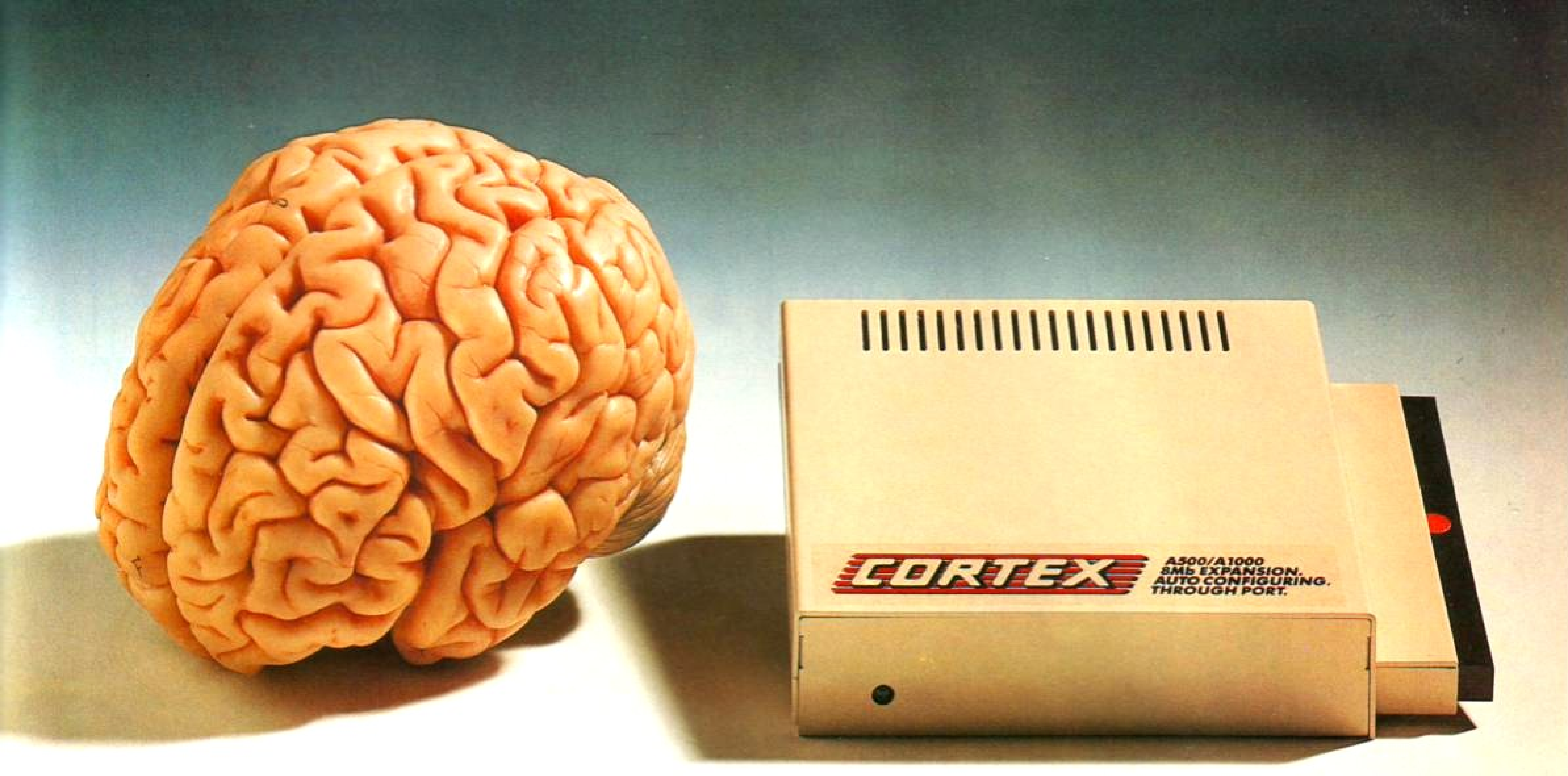
As for Nightbreed *and* Days of Thunder, *unfortunately we don't know of any cheats. Can anyone oblige?*

There are a lot of letters coming in for hints and tips on complex games like Dungeon Master *and* Shadow of the Beast II. *Unfortunately, we haven't got the space in Helping Hand to provide much help for such complicated games. If you want to find out how to beat Chaos in* Dungeon Master, *how to defeat Zelek in* Beast II *or even the codes and how to use them in* Rainbow Islands, *then the* Screenplay *book is for you!*

If there are games that are flummoxing you and you don't know where to go, check out Screenplay *for the most comprehensive collection of mini-reviews, cheats, tips, maps and solutions for Amiga games. Over 100 of them!*

If you're still stuck, then jot your query down and send it into **Helping Hand, Gamebusters, Amiga Format, 30 Monmouth Street, Bath BA1 2BW**, and Maff will try to help you


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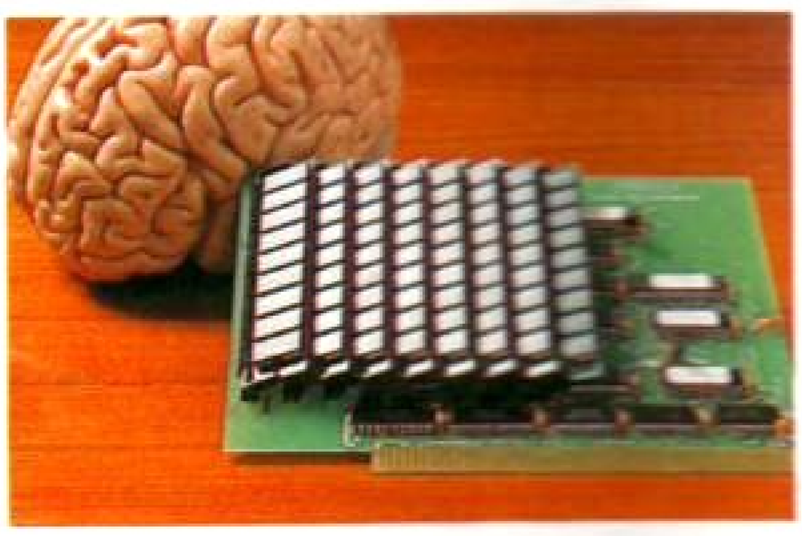
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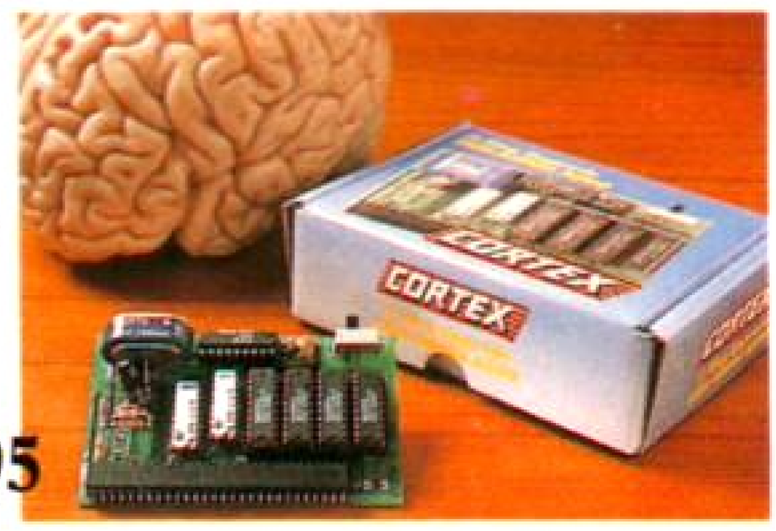
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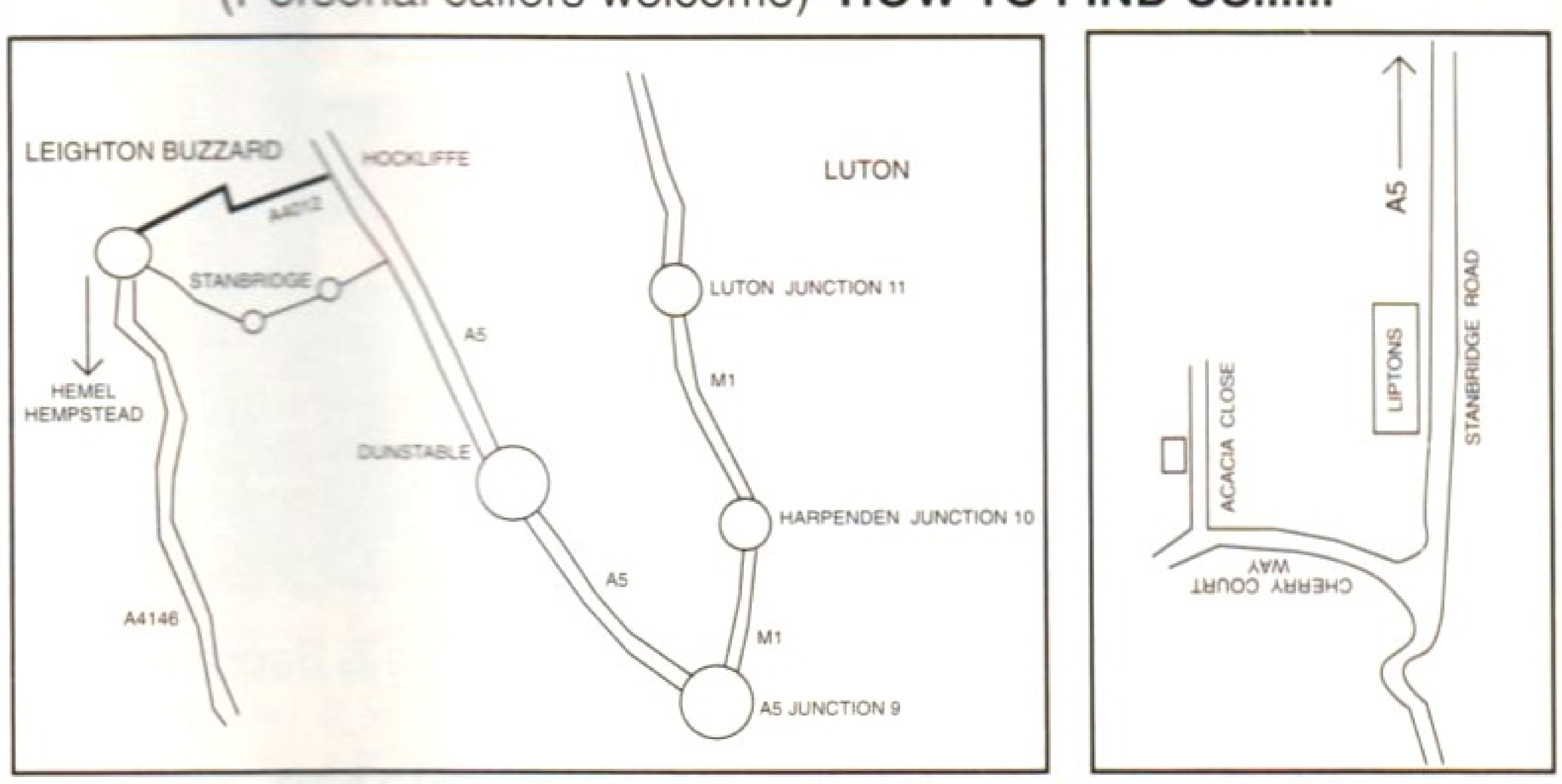
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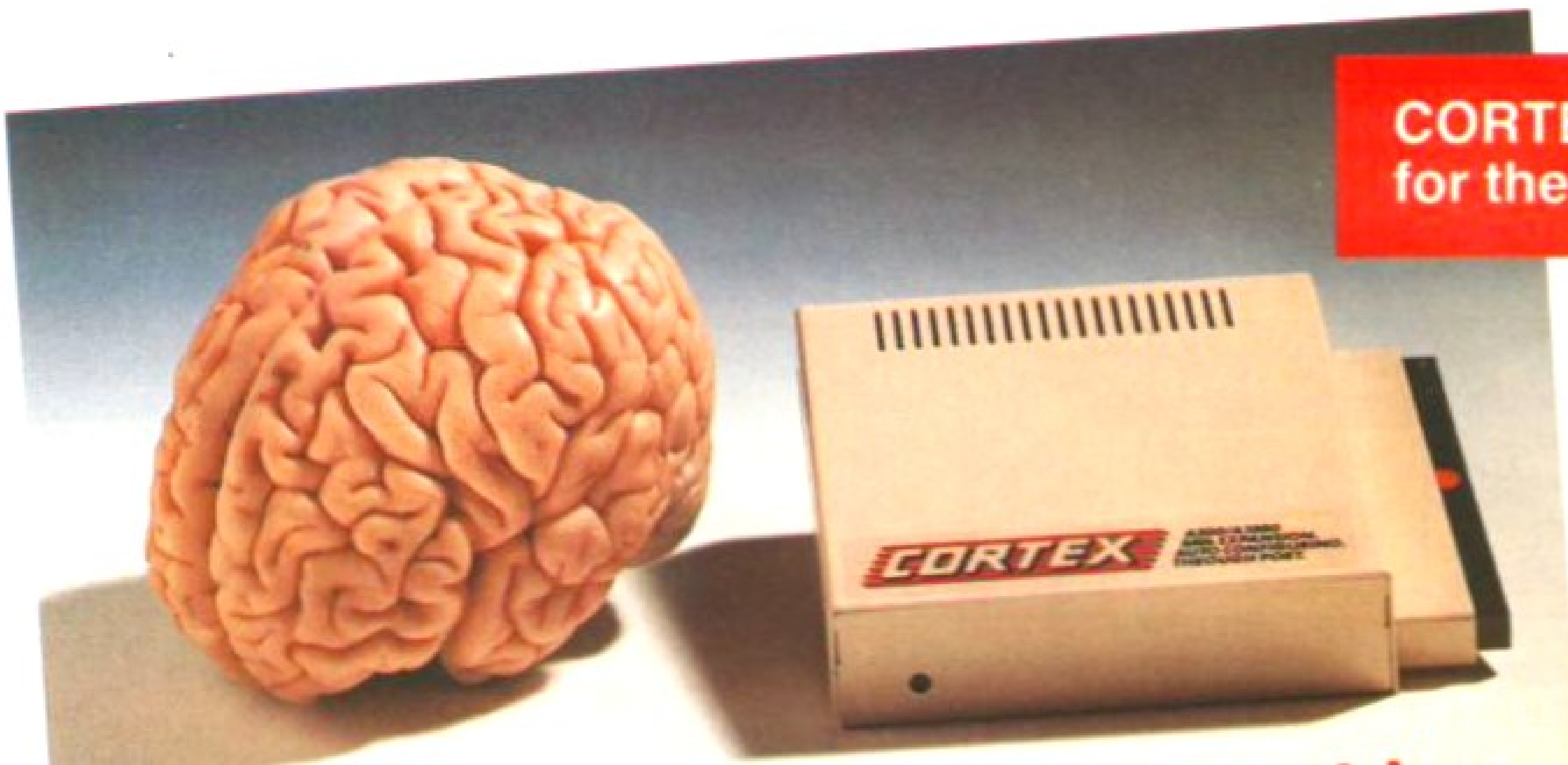
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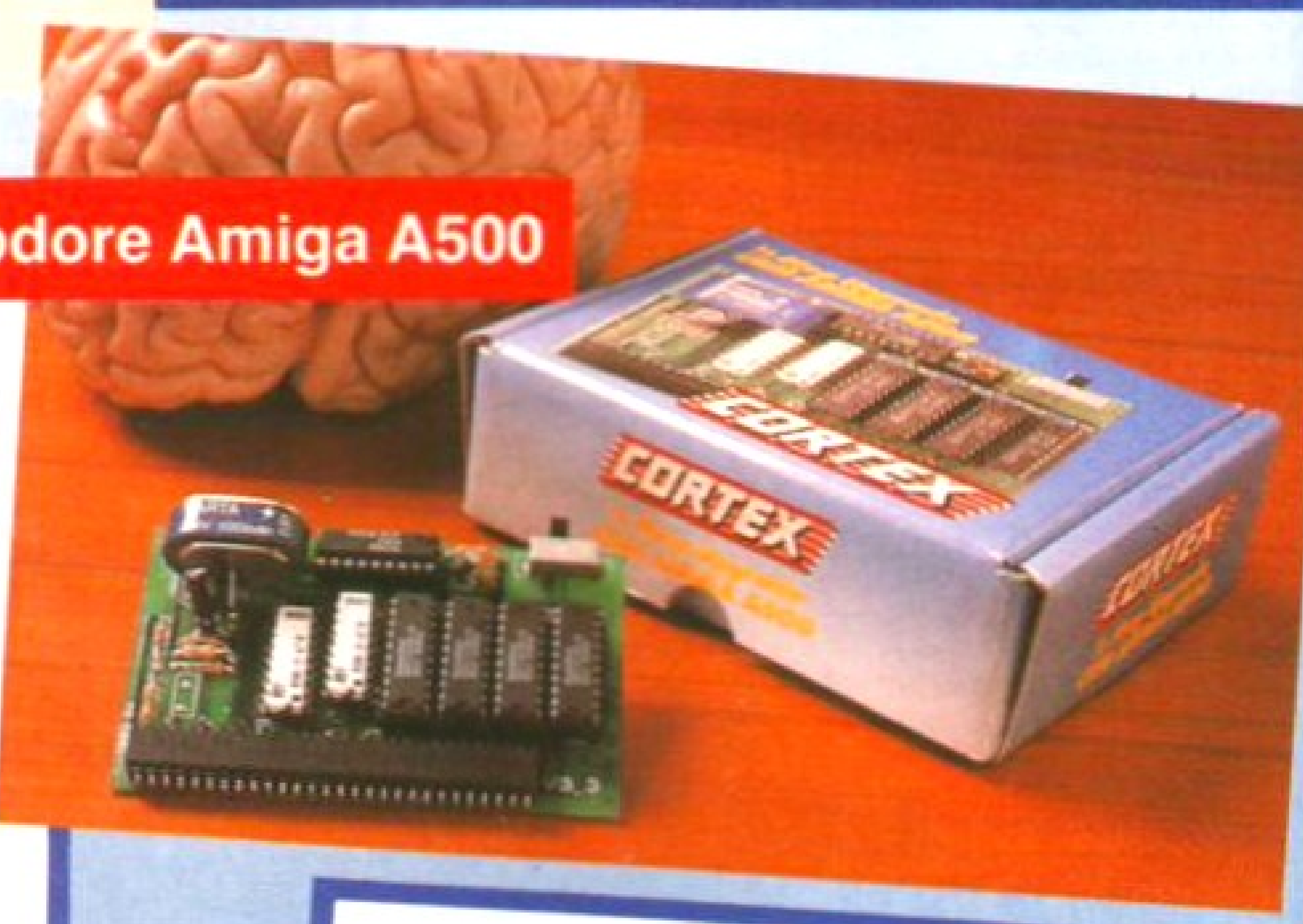


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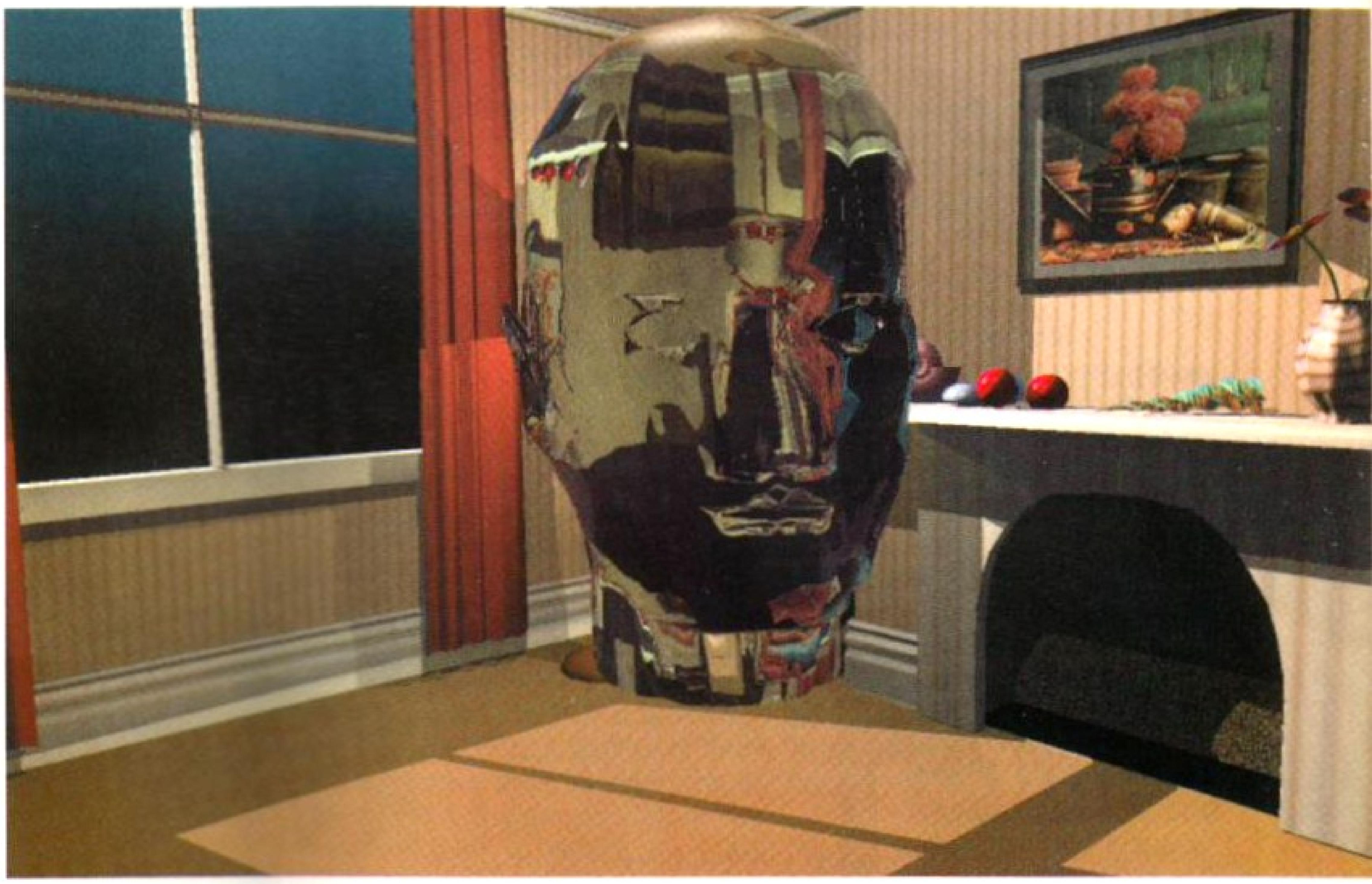
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It's the Real Thing!



The closest Amiga graphics come to real life is the stunning accuracy of 3D modelling and rendering. Our exhaustive guide brings you reviews of three exciting new products and a complete guide to 3D software, overseen by the amazingly lifelike **BRIAN LARKMAN.**

So you've done a bit of pixel bashing with a paint program and you want to try some of that 3D stuff. Looks really difficult, though, with all those coordinates and maths and vertices – and who's that geezer Ray Tracer? Some sort of expert? But no. Stop right there! That's what makes the Amiga so special – it can all be easy. It can also be very hard if you make mistakes with the software you use, but that's where we come in...

Because the Amiga is so good at graphics, there have been literally dozens of 3D modelling and rendering systems developed. A few of them are brilliant; a few were brilliant but have been overtaken by the opposition; a few are real dogs (smelly and avoided by everyone who keeps their eyes open).

This round-up attempts to guide you through this maze and to avoid putting your foot in it. It includes full reviews of the brand new Imagine (Impulse) on Page 124, 3D Professional (Progressive Peripherals) on Page 129, and Draw 4D on Page 133. The complete guide to the rest starts on Page 142.

Know your terms

Before we dive in, let's have a look at some of the technical terms - every subject has to have some, or no-one could be an expert!

Modelling – constructing a model of the object and its environment, usually represented by a see-through outline drawing called a Wire Frame. There are two forms of modelling...

Surface Modelling – constructs all objects out of flat faces or facets. A sphere is really a multi-face polyhedron, but if you use enough faces it looks round. Special shading routines can be used to make objects look really curved.

Solid modelling – constructs objects by rotating simple planes: a sphere is a rotated disc, a cylinder is a rotated rectangular plane. Because of this the curved surfaces really ARE curved.

Point Editing – the ability to zoom in and move individual points or groups of points. Solid modelling does not allow this.

Rendering – turning the wireframe representation of the object into a realistic view of the scene, complete with lighting, surface texture and...

Smooth Shading – faceted surface-modelled objects can be made to look smooth by averaging the angles of the faces at each junction. The profiles still look angular, though. Phong shading is one example, named after its inventor.

Surface Mapping – the characteristic sterile smooth plastic surfaces of computer generated objects can be made more interesting by wrapping the surfaces with texture. This can be a bit-mapped (painted) image or a programed texture, and can affect the surface in various ways, like...

Bump Mapping – for instance, gives the impression that the image is embossed into the surface, an impression heightened because the bumps are illuminated correctly by the lights in the scene.

Ray Tracing – an accurate but slow method of rendering. Each pixel is projected straight into the model and takes on the colour of any object it meets. If the object is reflective the pixel (ray) is bounced at an angle (just like a snooker ball) and takes on the colour of the next object (unless it is transparent – when the ray is bent – or a light – when the pixel is made bright – or reflective again...).

TriView – editing method where front, side and plan views of the scene are shown and you can work in all of them. Takes a bit of getting used to.

Perspective View – a single editable view of the scene from an angle. The angle can be changed freely (ideally in real time) to get different viewpoints. More natural to use but with some early software difficult to control the rotation of the scene and very slow update. Caligari changed all that!

Quad View – combination of the above but fourth view (perspective) isn't editable. A good compromise.

Continued Overleaf



Room and Shells. Visible on the shelf here are several objects (vase, seed-heads and flowers) created with the Forms editor and various shells created with extrusion. This is a full high-resolution 24-bit render. The only criticism is of the hard-edged shadows (these would not show so much in dithered HAM pictures). The picture on the wall (courtesy of Monty Rakusen) is itself a 24-bit RGB image that was digitised with DigiView4.

Imagine

In the first of our 3D software reviews **BRIAN LARKMAN** stretches his imagination into three different dimensions...

This is an interesting time for Amiga graphics. New HAM modes, *SpectraColor*, 24-bit boards, plus at least five new 3D modelling and rendering systems in less than a year – and now, at the top of that particular pile, *Imagine*!

Most people who have used *Turbo Silver*, *Imagine's* noble but rather cantankerous elder brother, will be pleasantly surprised by the new program. It seems to have overcome all of *Silver's* problems, but retained its excellent rendering capabilities. The addition of a unique object-creation method, Form Editing, greatly improved modelling tools, and a really simple animation cycle editor make *Imagine* the most exciting 3D system available for the Amiga.

Modelling

Impulse have adopted a modular approach for the interface, and have used a different screen for the various types of editing required to construct objects, place them in a scene, animate and render them. All modules have two menus in common: Project, giving access to the other screens, and Display, to control zoom, centering, grid and perspective view.

Four of the five modes look quite similar to each other, using the familiar quad-view of Front, Side, Top and Perspective.

Some people find it difficult to visualise their objects in a quad-view, so the presence of the perspective view, constantly updated, helps greatly, particularly if hidden line removal or shading are selected for its display. This slows down the refresh greatly but Impulse have thoughtfully ensured that editing of the other views can continue while the perspective view is redrawing itself.

> “The Detail Editor is the real workshop of *Imagine*, the place where most objects are created, or at least visit to have the finishing touches of their shape added. The range of attributes is so great that almost any material can be simulated.”

At first it seemed that having five modes would be extremely confusing, but the balance between their similarity – to make it easy to switch from one to another – and their differences – to distinguish between them, is just about perfect. After just a day's use it was possible to flick between modes fluently, a process helped greatly by sensible prompts to save changes.

Normally, as a project develops itself, you would work your way through each editor, starting with the Forms Editor.

Forms Editor

If working with any software could be called a joyful experience, then the Imagine Forms Editor must be it. Using this, almost any object can be constructed based on a single cross-sectional shape, with different front and side views.

For example, look at the vase on the mantle-piece in the illustrations. Because the cross section is star shaped, fluting can be seen running from top to bottom. Looking from the front or side, smoothly contoured curves define the profile of the vase. Yet every horizontal cross-section is the same shape, only the size varies depending on the diameter of the vase at that point.

The cross sectional view differs from a conventional plan because it represents a section through the object at ANY point, independent of size. Only the forms editor could have constructed this object.

With imaginitive use, a huge range of objects could be modelled in this way, but if you need to work with individual vertices (points), lines or faces another editor must be used.

Detail Editor

All of the standard primitive shapes – sphere, tube, plane, cone, disk and torus – plus the conventional modelling tools – extrusion to length and along a path, sweep & spin, skin, transformation, scale, move, rotate – are provided in the detail editor. Any object can have vertices, lines or faces added at any time. Similarly several objects or primitives can be linked together so that they become one object with a single axis (control point) and an overall set of attributes.

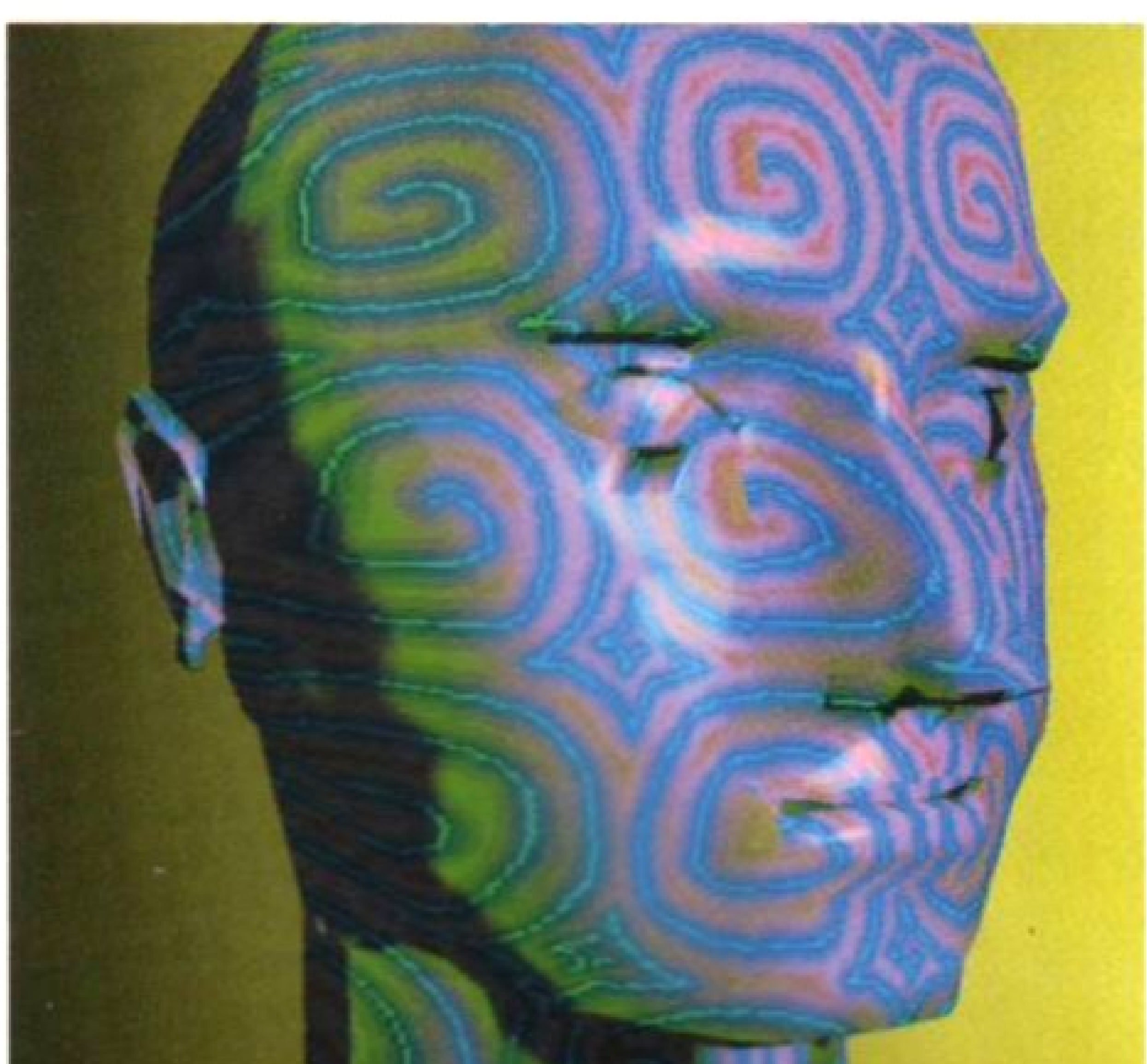
Any number of objects can also be 'grouped'. This is different from 'linking' in that it can be reversed, and each object in a group can retain its attributes and/or share them with the others in the group.

As well as the 'basic' tools that one expects of any modelling system, *Imagine* has several sophisticated ways to construct and manipulate objects. Skin converts a series of separate cross sections into a single object, joining points on each to make a surface as if a rubber sheet were dragged over a set of hoops. Conform to Sphere and Conform to Cylinder push any selected object into



BELOW: Crystal head. The Filter attributes only seem to work if shininess is turned off. Other versions showed an opaque, glossy object. This head has a refractive index of 1.55 (Quartz). The version bottom has an IFF mapped onto it to give a tattoo effect. The excellent model (Omega Head) is clip art by Leo Capricorn, Fresnes, France (tel 42 37 16 44).





those shapes as if they were pressed into a mould. Slice allows objects of any shape to cut into other objects as 'cooky-cutters', in effect performing Boolean operations. Thus a perfectly circular hole can be cut out of a sphere, an immensely difficult operation with any other system.

Imagine is the only surface modelling system to offer this tool (though it is common in solid modellers like *Real3D* which depend on Boolean operations to form anything but simple primitive forms).

The ability to edit at the point level is one of the great advantages surface modelling systems have over solid modellers. Working on points rather than whole objects, it is possible to drag groups of vertices in a really fluid way using the Magnetism tools. The 'magnetic' parameters can be varied to drag rounded, pointed or flat-topped 'blobs' up from the surface of objects, and by varying the radius and degree of influence, the feeling that you are modelling clay is simulated quite uncannily.

It's a workshop

The Detail Editor is the real workshop of *Imagine*, the place where most objects are created, or at least visit to have the finishing touches of their shape added. Once the final form is settled, it is also the place where the surface finish is decided, via the Attributes requester. Here, the colour, reflectivity, transparency, roughness, shininess, hardness, specularity, Phong smoothing, texture mapping (algorithmic or 'coded' textures) and IFF brush mapping (including bump, colour and reflection) are added. These define the material that the object is made from.

The range of attributes is so great that almost any material can be simulated. The exception seems to be translucent or partially opaque materials such as blinds or lampshades with light behind them. Impulse assure me that the latest version solves this problem.

With such a large number of parameters to be set it is not suprising that a Save Attributes requester is provided. Unfortunately this does not save the Texture or Brush parameters – the ones that take the most typing-in of figures. The choice of saving all the parameters or at least printing them out for reference would have been nice.

The 'coded' textures of Imagine are one of its main strengths. At present the list stands at: checks, bricks, grid, wood, disturbed (wave patterns), angular, linear and radial colour gradients and dots. Amazingly, two or more can be applied at once.

The great advantage of these non-IFF textures is that they render at the resolution and number of colours you have selected so there are no jaggies carried over from an IFF brush. At high resolution in 24-bit mode wood or gradient colour textures are amazingly smooth.

Stage Editor

Once all of the objects in a scene have been constructed they need to be assembled into a scene or 'stage' containing camera and lights. By now object attributes and 'form' are unchangable except for scale, position and rotation.

For the interior, all of the objects were created within the outline shape of the room in the Detail Editor and then saved from the relative positions they would ultimately occupy in the final scene. Usually this meant that they only needed to be loaded into the Stage Editor, though fine tuning was possible.

In the Stage Editor the Perspective View can be set to Camera View so precise positioning of camera and lights can be achieved. Unfortunately, the Camera view does not necessarily bear any real relationship to the size of the final image – only by rendering the actual scene in wireframe can you tell to what degree the camera view will be cropped. This is really only a minor nuisance.

Animation

Where the Stage Editor really scores points is in animation, for it is here that you set up movement paths, tweening and – most importantly – access the Action Script Editor. In fact most of the activities that take place on the Stage can be set up more accurately, and sometimes more easily, on the action script. In operation it is easier to use than to describe, but let's have a go.

Refering to the illustrations you can see that the 'actors' (the camera, each object, each light source and any global parameters) have a timeline from frame one upwards. For a single still image only frame one is used. Actors can be added, renamed or deleted and parameters changed.

Each actor can have up to six channels to control position, size, alignment, hinge (ability to turn), special effects (explode, ripple, grow) etc. By changing any of these parameters at different points along the timeline, objects, lights and camera can be made to transform in an astonishingly versatile and varied way; following paths, moving from place to place, rotating around hinge points, expanding or contracting, morphing from one shape or colour or surface texture to another, all controlled from a simple interactive 'dope sheet'. Perfic!

Cycle Editor

One form of animation is difficult to control using this global 'script'

method is character animation. By their very nature the complex, yet repetitive movements of a bird's wing or a running woman, require many objects to be moved in unison with each other, each part depending on those of all the others. To control these various motions requires that a hierarchy is set up.

Many interlinked actions can be recreated with the Cycle Editor. The various parts are modelled first in the Forms and Detail Editors. The hierarchy that joins them is produced by creating a central 'skeleton' which can be easily moved, rotated and pivoted, to which the parts are attached.

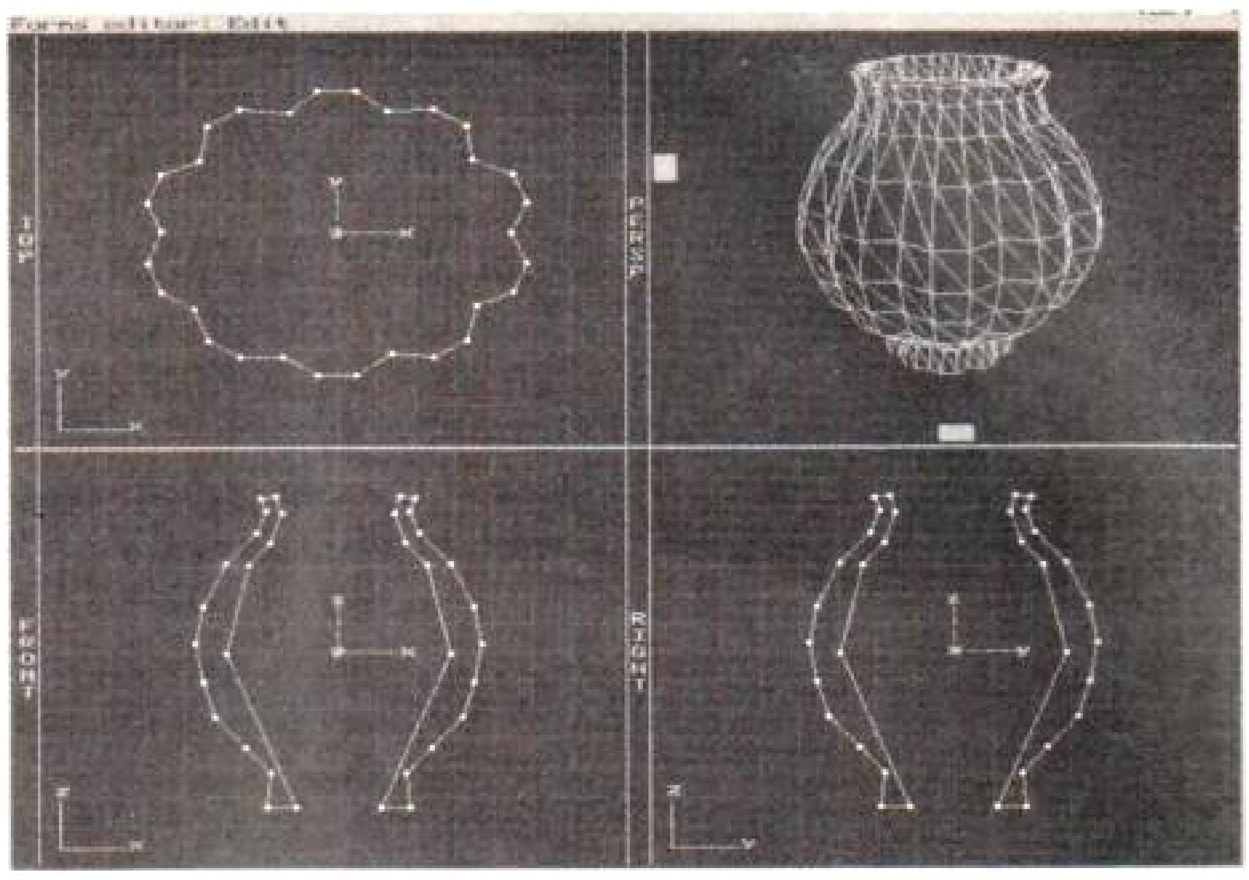
The first frame of a cycle is set up, with the 'bones' or segments positioned at one extreme of the movement. Jumping to the middle and then to the final frames of the cycle, the segments are moved to suitable positions. Intervening frames are automatically set up with the inbetween or 'tween' positions of the segments, managing to save a vast amount of work.

Cycle objects produced in this way are treated on the stage as if they were normal objects and will repeat their cycle endlessly even while being moved and transformed if required. Altogether it is an extremely painless way of producing a character that is in moton.

Once the actors are prepared and the stage has been set, the scene must be photographed or rendered. This is a task for...

The Project Editor

Each new project is allocated a directory and all objects, staging instructions and images are, for preference, stored there. So that several versions of a particular project can be rendered a Rendering Subproject can be set up and this produces an automatic sub-directory within the project. For anything but the simplest project a hard disk is essential.



Forms Editor. Note that each horizontal pair of points in the lower two views represent the cross section shown in the top left view. The cross section is therefore just a form, independent of size.

Launching a new sub-project brings up a file requester to provide a name and path, then the Subproject Parameters requester appears. Here you can choose from six rendering methods (anything from wireframe to scanline and Ray-tracing), the picture and pixel size (up to 8000 by 8000 – selection is made easy by eight presets that can be defined with Imagine's comprehensive .config file), the path for still images and animations, and the file format (12 and 24-bit ILBM and RGBN plus separate R, G and B for stills, ANIM and IMAGINE for animations).

Individual or multiple frames can be selected for rendering, and can then be assembled into an animation according to a script that can be produced with just a simple Text Editor. This allows quite complex, looping animations to be set up from relatively few frames.

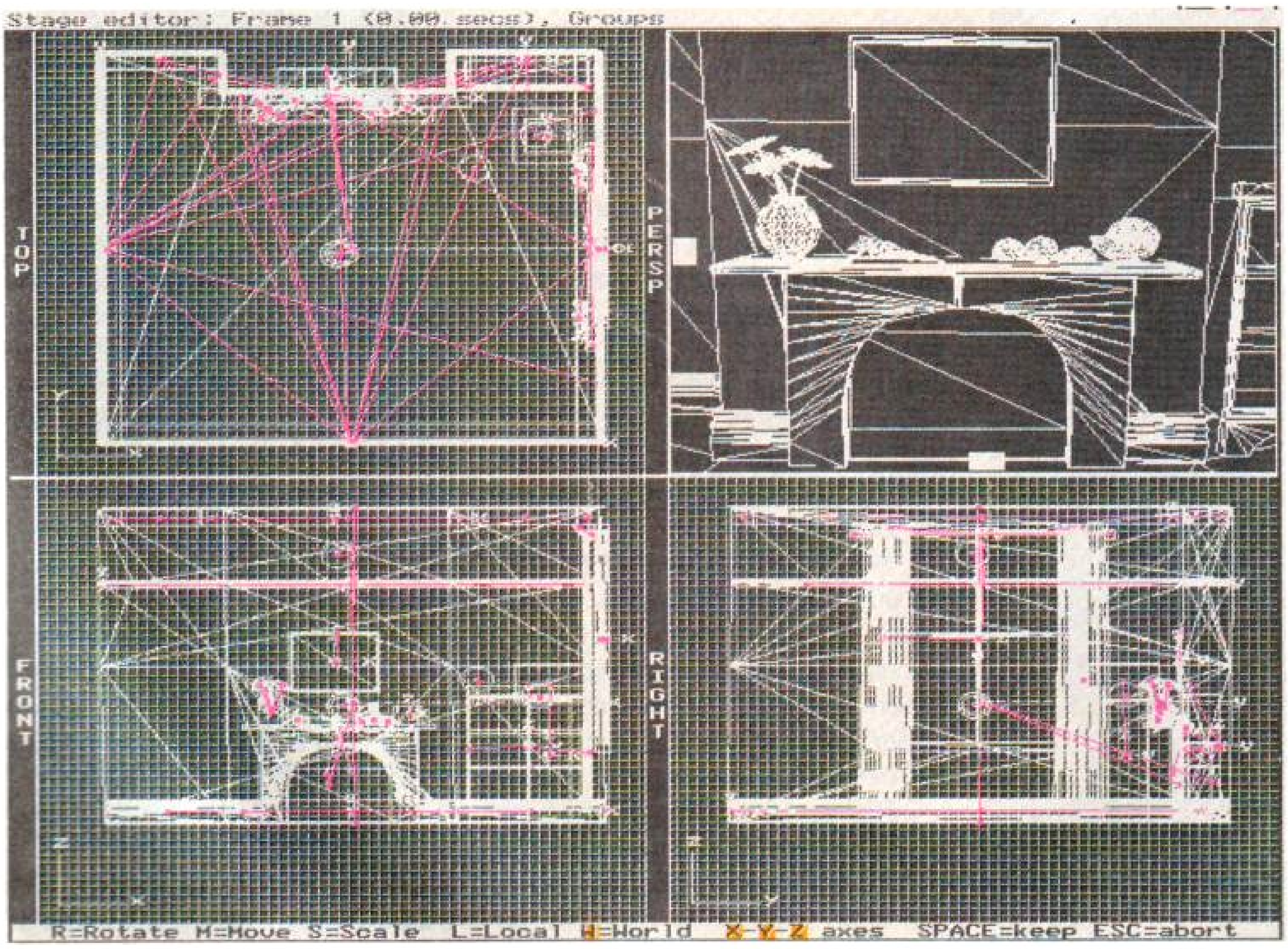
The Images

Obviously the real test of a renderer is the images that it produces. *Imagine* produces really superb ray-traced pictures that have a subtlety few other 3D systems available on the Amiga can achieve. The bump mapping is the only thing that leaves anything to be desired, especially compared to that of *Real3D*.

Nevertheless, the combination of useful built-in 'coded' textures, IFF brush-maps, and comprehensive control over surfaces, allow almost any object to have a high degree of depth and 'presence'. Put simply they are just really convincing. But only God writes perfect software and there is inevitably a wish-list of features that could be implemented. Let's just mention a few!

Displaying 24-bit files on a frame buffer in high resolution (16 million colours at 910 x 576) certainly tests the quality of an image. The first thing to notice is that the shadows look very hard edged. In reality they would become softer the further they are from the casting object. Similarly it would be nice to have smoke and mist, semi-opaque objects (Pernod with water), and depth-of-focus effects. Though remember, all of these would add hours or even days to the rendering times.

Speaking of times, what the images cannot tell you is how quickly that they rendered. In fact *Imagine* renders very fast – for example, those scenes with transparent objects appeared faster than similar *Real3D* subjects and much faster than *3DPro* or *Sculpt*.



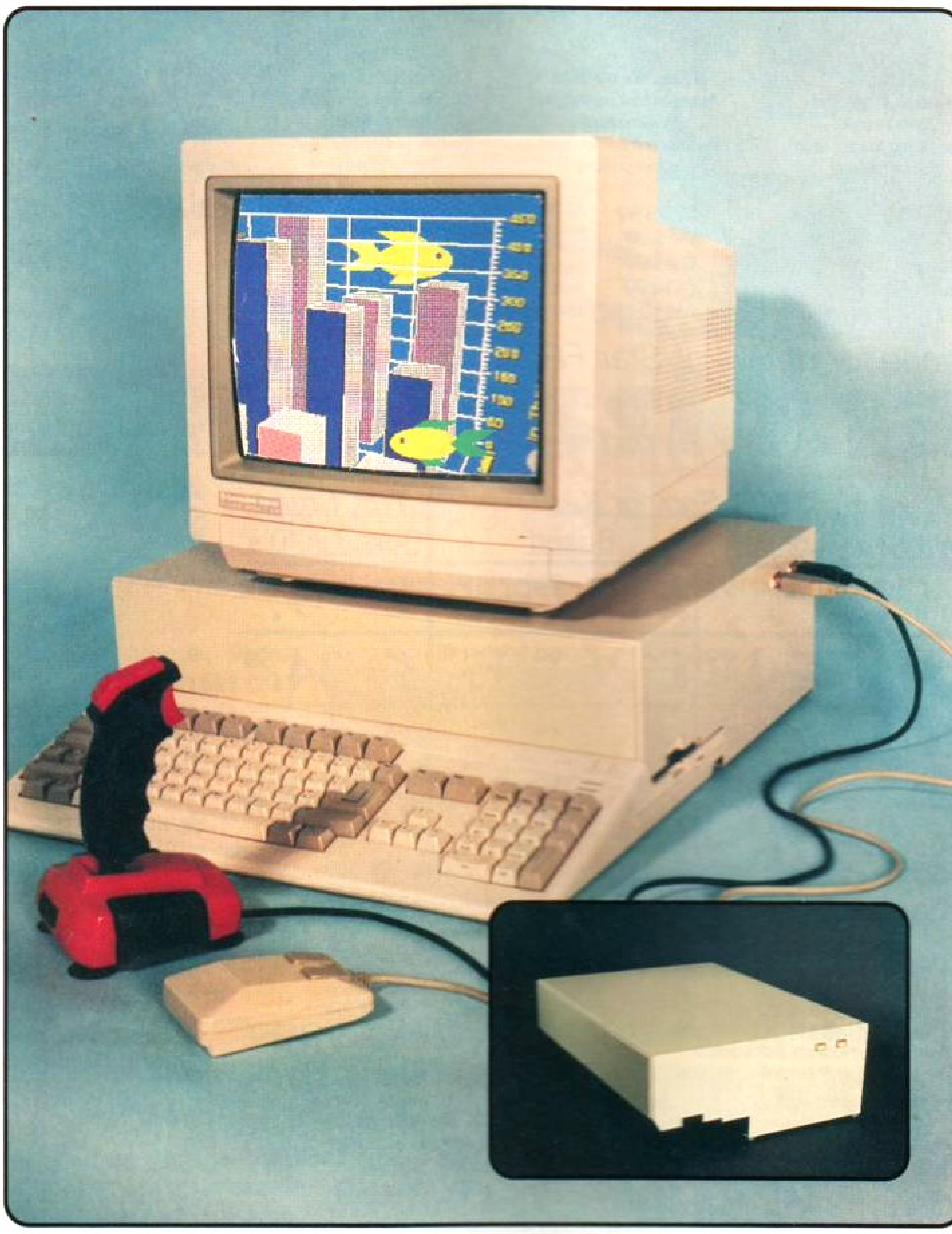
Stage Editor. Tri-view plus perspective (camera) view. The pink lines represent objects that are grouped. Clicking on any of the view names opens up that window to the full screen.

Conclusion

The review of any piece of software as powerful and dense as *Imagine* must inevitably only scratch the surface of its capabilities. As we said above, the real test is in the images, and I think those displayed here speak for themselves.

To summarise: *Imagine* is a little dense to get into, especially when you get just past the rather limited tutorials. The manual as a whole is rather weak though it has all the basics and is well layed out. It just needs fleshing out. The interface is quite straightforward and easy to use though the concept of picking and selecting takes a bit of getting used to. Modelling is extremely powerful allowing complex organic shapes, Boolean operations, and much more.

Animation seems well catered for though unfortunately this review did not have time to experiment in any great depth. Cycle editing in particular is very powerful and easy. File handling is reasonable, though it would be nice to import *Sculpt* and *Videoscape* format objects and output Renderman RIB files. The rendering is superb, though there is room for a few more special effects – but then I suppose that's what keeps us in work, isn't it? ■





3D Professional

DEAN AGAR puts on his 3D specs to look at the second piece of 3D software under scrutiny this month.

The starting point in *3D Pro* is the modeller. Upon loading you are asked to set up a database that any subsequent scene will occupy. This can be confusing, but just accepting the default values is as good a place as any to begin.

The screen is standard Amiga layout and looks more like a paint program than a complex 3D rendering package.

Using the icons in the tool box it is possible to rotate, stretch, duplicate, slice, delete, group, mirror and align objects. Having this tool box constantly available is very useful, but if it was moveable around the screen this would be an added bonus.

Re Views

The six views of the 3D world which *3D Pro* employs are all available as editable modes. A useful camera view is also included. It is possible to view three angles plus a camera view at the same time, but sadly it is not possible to edit in this mode. This is frustrating when you need to position an object accurately and you would ideally like to see at least two views as you move your objects.

While viewing a given angle, other elements (camera and lights) are shown. Moving these is just a case of click and move. One quirk, however, is when you move the camera closer to the objects, in that the camera view does not become any closer.

Genesis

Creating objects is easy, but making anything complex is difficult. *3D Pro* employs 'solid modelling'. Essentially this results in the objects not being editable at the vertex level: for example, it is not possible to select half an object and use a magnet to distort it.

This means creating organic and soft objects is awkward, though engineering and man-made elements are simple. It combats this by using separate editors for particular shapes.

For example, the lathe can produce 'turned' objects such as vases and bottles. The profile editor acts like an extruding tool, but allows multiple shapes to be extruded one after the other to give more complex objects. Conic allows the points on a line to be taken to one point – like a fan shape. Uses for this escape me.

Trees and Fields

A modeller unique to *3D Pro* is the fractal tree modeller, which allows trees of any given specification, including leaf size, branch length and gravity level, to be made as a 3D object. Complimentary to this is the land modeller which creates fractal landscapes, although the variety does not compare to the tree modeller.

Converting Amiga fonts into 3D objects is catered for, as is the conversion of an IFF picture into a 3D object. The latter, however, proved unusable on a 2 Meg Amiga 500 because of the memory limitation. A simple quarter-screen picture refused to convert because of lack of memory. The ability to wrap IFF images onto an object is not catered for.

The program also offers the ability to convert files from most 3D programs. However a *Sculpt 4D* scene loaded in to *3D Pro* had so many vertices added that the redraw rate was into minutes and rendering became even slower than normal.

Environmental problems

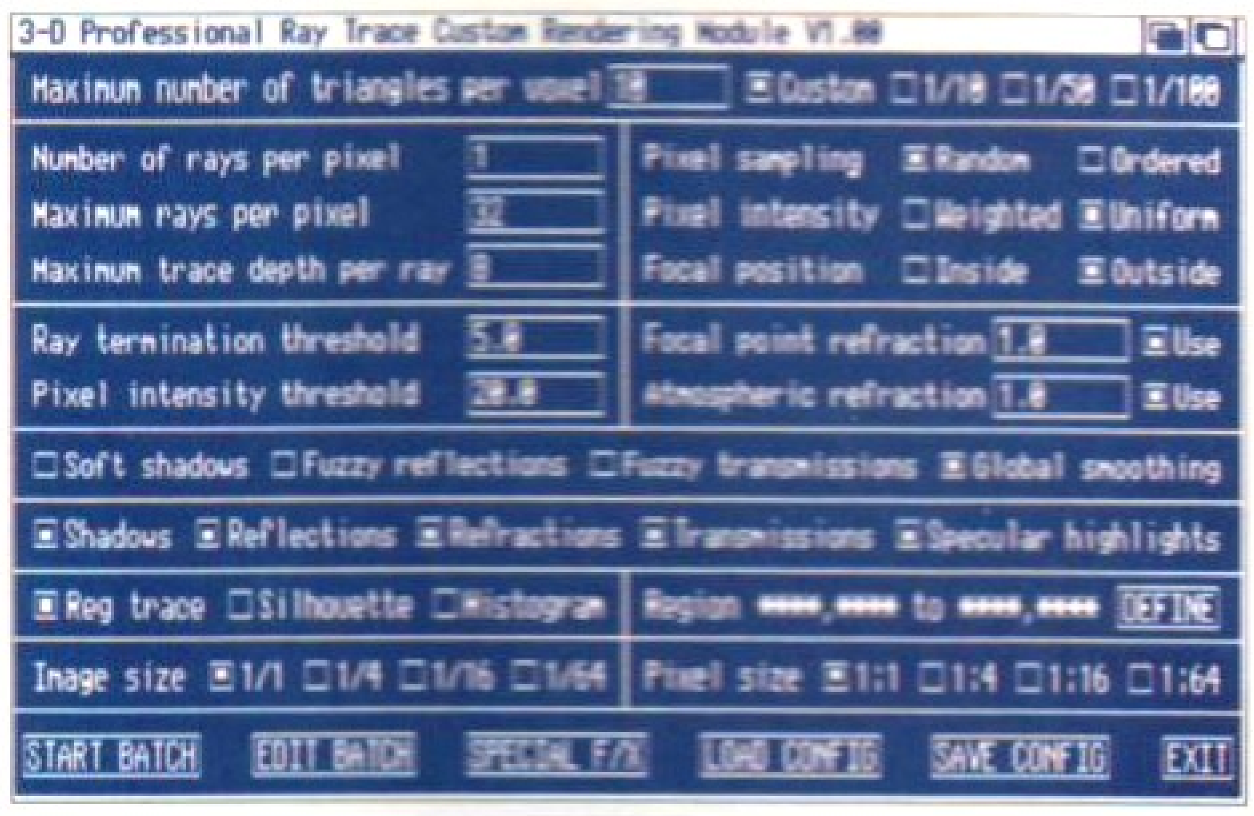
The environment within which the modeller works is very good, and everything is easy to use. The requesters for changing the attributes of objects, lights and the camera are well laid out and very informative. But once you have built many objects, some problems crop up.

On a standard Amiga 500 or 2000 the redraw rate, even in wire frame, of anything more than a couple of spheres becomes incredibly slow. For any kind of complex scene, waiting for the screen to redraw after you have moved an object can take up to a minute and because of this it is totally unusable.

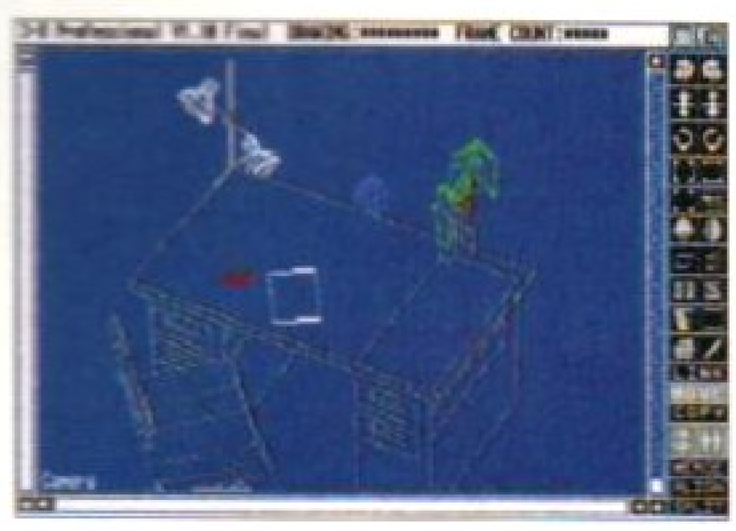
More Troubles

Other problems occur. By far the most annoying goes back to setting up a database at the beginning. If at the beginning you defined, say, a maximum of 50 objects and find that

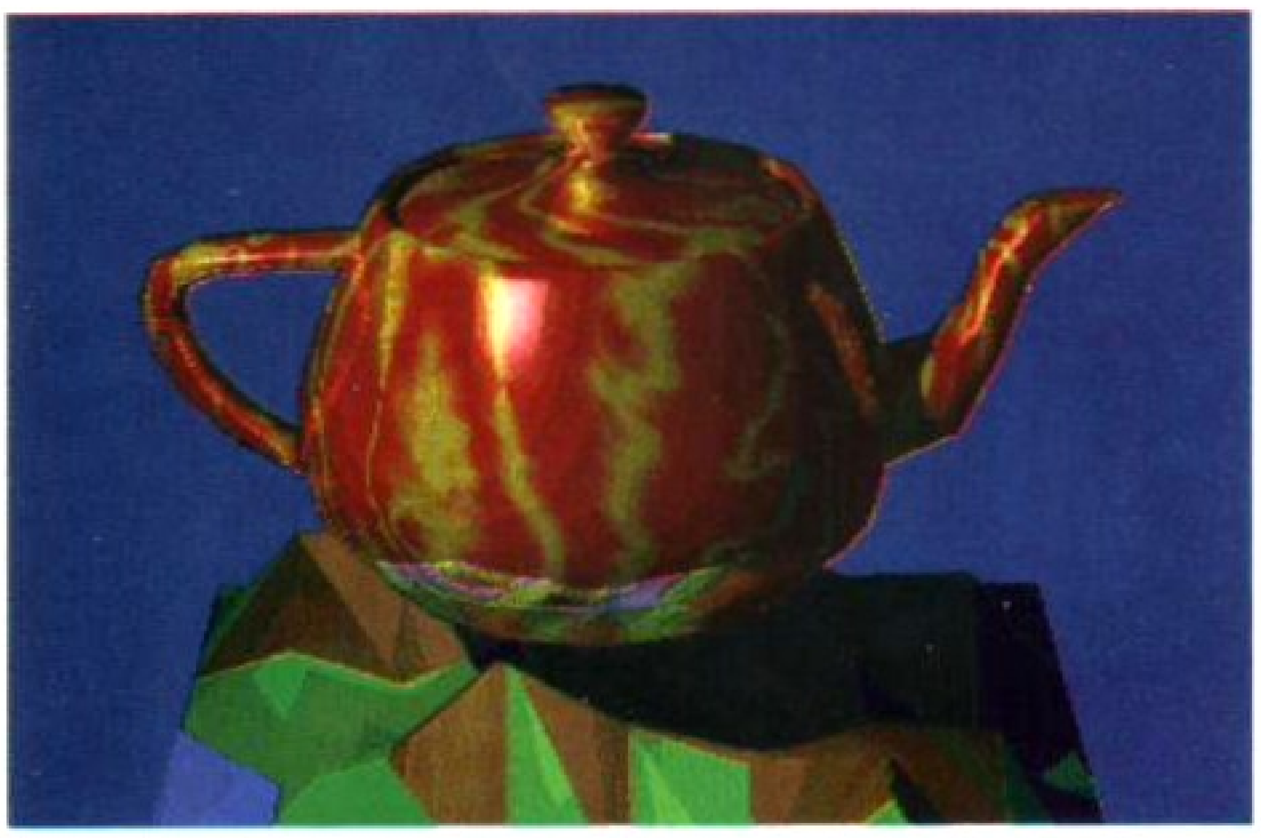
Continued overleaf ▶



The range of options available in the custom ray-tracer (ABOVE) is enormous, but speed will limit the experimentation. Our room model (TOP) is seen in wireframe (RIGHT) before being sent to the tracer.







your scene requires more, you can't add them. Extending the database causes you to lose your existing scene. This means saving your scene, which can take a couple of minutes because *3D Pro*, for some reason, saves every element in a different drawer – then changing the database and seeing if your scene will load into your new database.

> “The six views of the 3D world which *3D Pro* employs are all available as editable modes. A useful camera view is also included. It is possible to view three angles plus a camera view at the same time”

Similarly this happens if you find you need more lights than originally intended, or any object uses more vertices than you thought they would.

On the whole the modeller is very frustrating. You can see what the programmers had in mind and the potential lurking underneath the excellent interface but tapping into it can sometimes take more effort than is really justifiable.

Rendering

The rendering available to *3D Pro* covers the usual options from wireframe to smoothly-shaded images. Within the program itself wire frames can be produced along with solid faceted rendering.

The solid modelling approach of *Real 3D* makes it ideal for 'engineered' shapes like this teapot.



Also directly accessible from within the program are two smooth renderers called Phong and Gourad. Although not true ray-tracing they offer a fair amount of realism and are perfectly acceptable when the results are not required to be photo-realistic.

With the present revision to Version 1.1 *3D Pro* now includes a custom ray-tracing module which, although potentially a step above the competition, only serves to frustrate the user further. Although tests and certain parts of renders can come out very well it is difficult to know what the results are going to be like.

After eight weeks of using the program, results approaching any kind of quality were still many weeks away. The problem is speed. Using a 25 MHz Amiga, simple scenes in low-res were taking well over an hour.

The Tracer can be used as a stand-alone or loaded together with *3D Pro*. Running both programs together can cause problems. With 5 megs, Tracer refused to render a scene because of memory limitations. Playing around with settings can solve this but, being so hit and miss, it is not entirely satisfactory.

Smooth Performer

Because *3D Pro* is a solid modeller its big advantage is displayed when images are ray-traced. It is immediately noticeable that even objects with few vertices do not look 'faceted' like other programs. Spheres are perfectly round and objects are smoothly rendered unless told otherwise.

Tracer contains many features that can give the same scene a completely different look. One of the unrealistic aspects of 3D rendering is that the human eye never sees any scene with everything in focus at once. In *3D Pro* it is possible to focus on a particular object or point in your scene, making it more realistic.

Images can also be produced where distant objects are darker than objects nearer to the viewer, which helps to create a greater feeling of space and distance. Mist and fog effects are also possible as are specific types of light source, from a torch to a fluorescent light. Shadows, too, can be varied between sharp and black, to very soft and undefined.

More Trouble

Most of the problems here are connected with the included textures of the program. Only one type of wood can be attributed to objects within a scene. For example, it is not possible to have a dark oak desk alongside a pine shelf. It is simply one or the other. When you give an object a particular texture, that texture is not fixed to the object as such. Rather, the model becomes a window into a textured universe so that as you move the object, it leaves its texture behind! Thus, animating textured objects is virtually impossible.

3D Pro offers all the expected output facilities such as raw and IFF 24-bit files at any resolution, as well as output to single-frame recorders. It also offers Postscript files for use in DTP and high-resolution output. These are available when using the tracer from within the program but are absent from the stand-alone tracer.

Animation

Animation can be produced in two ways. The first and least friendly uses a script file to create movement in your scene. You tell the program, by a series of commands, to move objects, lights and the viewer around the scene. 'Real' professionals create their animations on workstations in this way, so I can only say that this is a valid, but difficult technique.

The second technique used is the popular and versatile key-framing. This involves positioning everything in your scene and specifying it as a key frame. You then move your objects into a different position and specify this as the next key frame. The computer then creates the scenes between the first and last. Although simple in essence, complex animations can be produced this way.

This method also allows object morphing. In theory, if you change the shape of an object between key frames then it will seem to transform smoothly in the resulting animation. On previous packages this has always proved difficult. Even changing a sphere into a cube can be a nightmare. Sadly, the use of a solid modeller makes organic transformations even more difficult, although simple re-sizing in all directions is possible and can be quite effective.

One of the problems of key framing in the past has been objects positioned around a scene move in straight lines to their new positions. *3D Pro* can 'draw' a smooth path through the key frames of an object. For example, to have a planet rotating around a sun in most packages would require an unusable amount of key frames. *3D Pro* can create this in 3 to 4 key frames.

Conversely, a limitation is that between each frame a set amount of tween frames must be used. For example if you have 5 key frames you must use the same number of tweens between each of them.

Speed in this program can be an immense problem. On a 2 Meg Amiga 500, six wire-frame images of a ball bouncing on a cube took 45 minutes to render. The animation itself was 90 frames, so the full 90 frames would have taken over 11 hours had it been left rendering. By comparison *Sculpt 4D* on the same machine produced all 90 frames of the same animation in under 30 minutes. ■

STOP PRESS

The manufacturers, Progressive Peripherals and Software, didn't even attempt to defend the product and readily admitted its problems and shortcomings. They seemed more concerned to point out that a very seriously revised version 2 was 60 days from release. As well as claiming that all the faults were now corrected they claimed that many new features would be appearing. Real-time animation, 24-bit IFF mapping, vastly speeded-up rendering and redraw rates and 25 new textures were among the most realistic. Also it would seem that the price of the software will drop to below £200, although I haven't seen any adverts to confirm this yet. Judging from the quality of other software available now I would think carefully about waiting for the upgrade.

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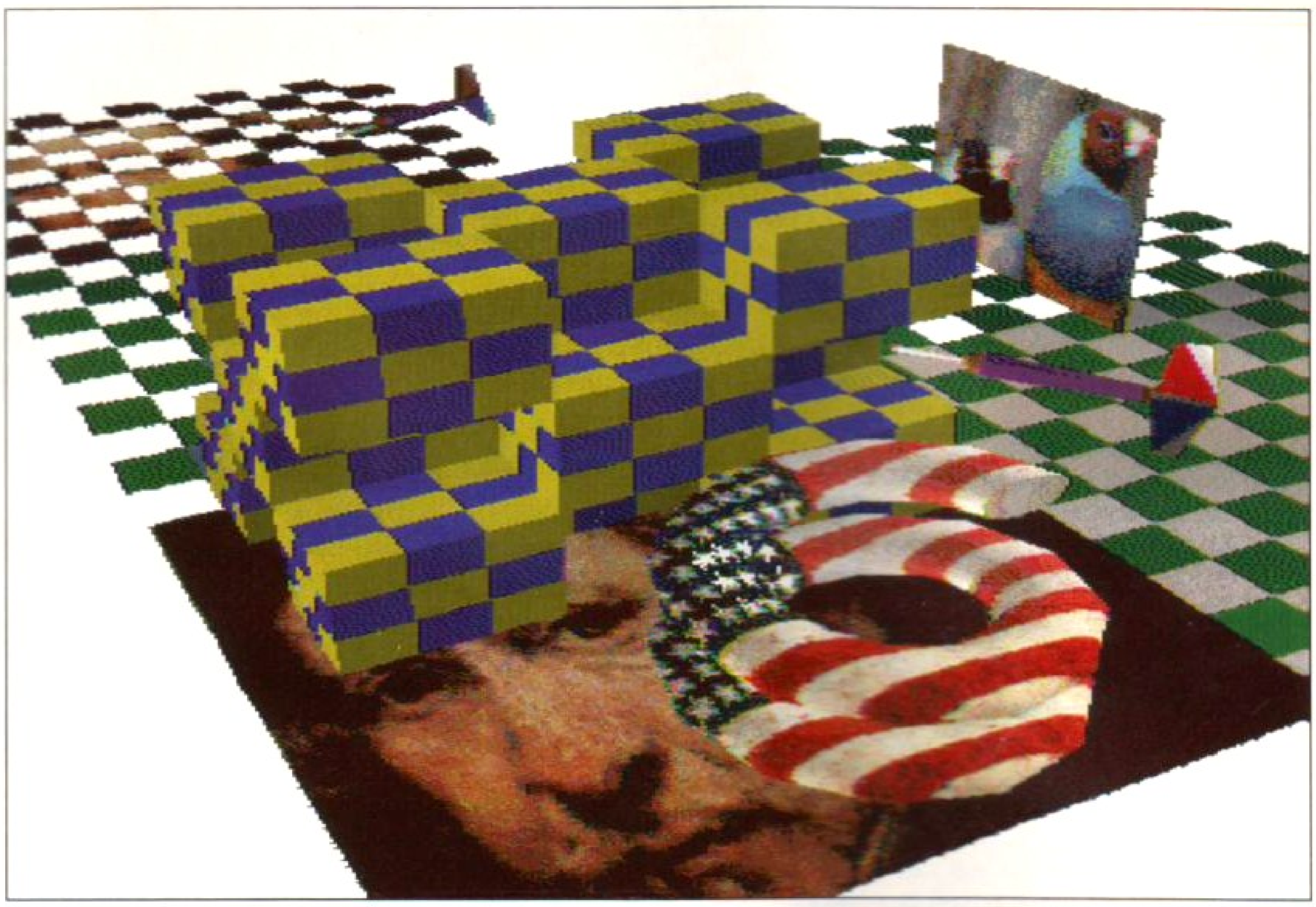
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However outrageous and complicated your final result, you can save it either as *Professional Draw* clip-art, for use in the *Professional Page* DTP system, or as a simple IFF picture file. There is, however, some doubt as to whether the quality of the IFF pictures is sufficient to create stand-alone images: clearly, the program has been tailored towards the specific needs of DTP illustration and so is, in a sense, more of a CAD illustration package than a 3D art program.



You can also save drawings out as IFF files, although goodness knows why. Perhaps as a starting point for a drawing but not as a finished product.

> "The program features its own D4Dfonts directory ... The really clever part here is that these are 3D fonts, so the fonts don't have to be flat figures. It's possible to have letters with bevel edges which catch the light as you turn them"

Animation

The program also does animation, and can save the 3D animations out as ANIM files. This could be good as a sort of starting place for drawn animations, where you want to get something looking good in 3D before you draw the final colours and shapes.

For a room, for example, you could create all the shapes roughly and rotate it and then draw the furniture in colour and shapes. This is a good tool for animators and even artists, as the finished 3D shapes could be printed out as line drawings on which to base your own art, meaning the same room could be rendered from different perspectives and be accurate.

As a finished animation tool, however, *Draw 4D* leaves much to be desired, and the colours all have a dithered look and an undesirable lack of colour resolution.

Text Handling

The program features its own D4Dfonts directory containing two fonts: Block and Times. Although there are no fonts available for the program as yet, an editor is supplied to make adding your own fonts as easy as possible.

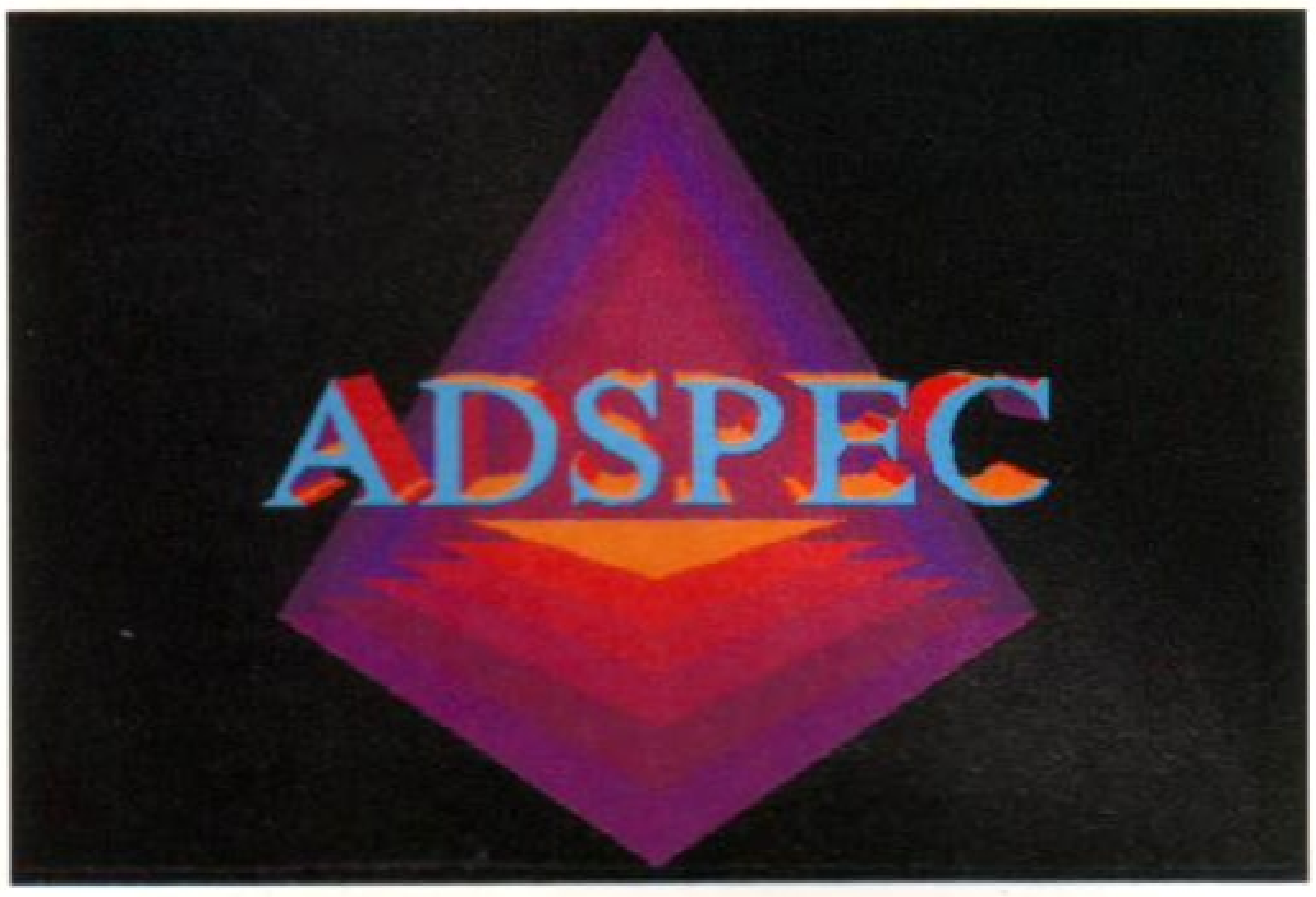
The really clever part here is that these are 3D fonts, so the fonts don't have to be flat figures. It's possible to have letters with bevel edges which catch the light as you turn them and other sorts of things like that. So a very flexible font system, although if you don't like the fonts supplied you're in for a few weeks of hell designing your own.

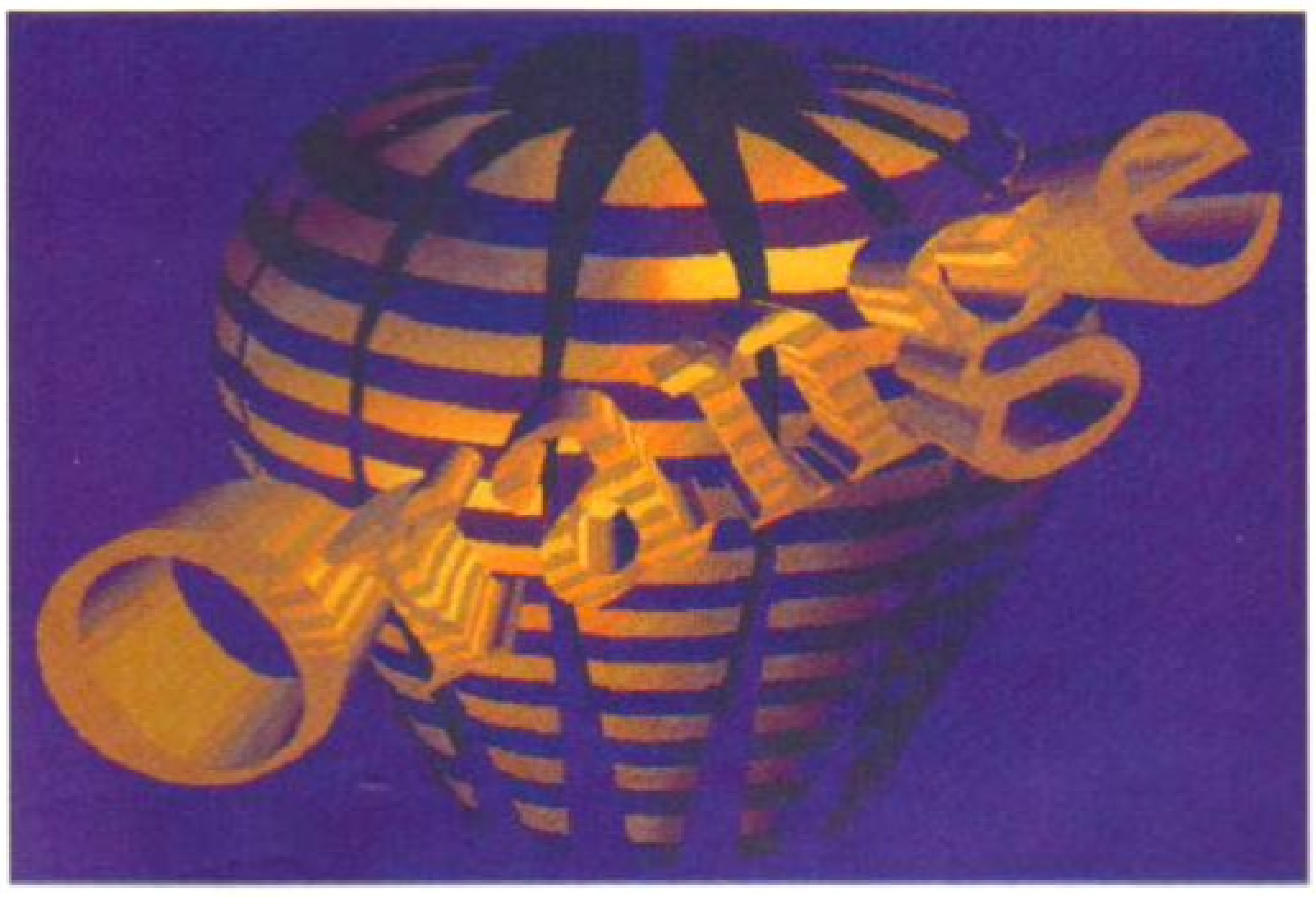
Having said that the fonts are quite nice. In order to get text on the screen you type the words you want into a requester and then hit go and the word is zapped onto the grid in whatever plane you are editing at the time, x, y, or z. Text rendering is fast, and so it should be as the figures are not filled at this stage. You can transform all the characters in a word, and produce some very natty logos simply by rotating a set of words!

Conclusion

This is a very peculiar program, and a bit of niche market in most people's eyes. But despite all these drawbacks I really like the effects it gives, especially for text, which makes for really very interesting and original headings and sub-headings in your documents. For new revisions of the program I would definitely like to see converters for different kinds of draw, 3D and animation programs, just to widen the appeal a little bit. Wider than quite narrow, that is.

Draw 4D poses some interesting questions, has some good starting points for you to go on from, but the only really polished output you can get from it is clip art. What it needs is a little lease of life by borrowing something from all the best programs. And that means talking to other formats and making your presence felt. Still, *Draw 4D* is very good at what it does...







Draw 4D

A specialised entrant into the 3D arena promises to supply 3D for DTP work. **PHIL SOUTH** examines it...

Some programs really seem to go out of their way to defy categorisation by critics and users alike. This can be very dangerous territory, especially in the realm of graphics programs.

Draw 4D is just such a program. Although it is a 3D program it doesn't do regular 3D formats like *Sculpt, Videoscape* or even *Turbo Silver*. It is in fact more of a 3D structured drawing program which produces clips for *ProDraw* and *ProPage*. But further than this, it also does animation, and it also renders, but not to any suitable resolution. This failure to support anything but the most esoteric formats would prompt most reviewers to consign it to the bin, but I disagree.

Drawing In 3D

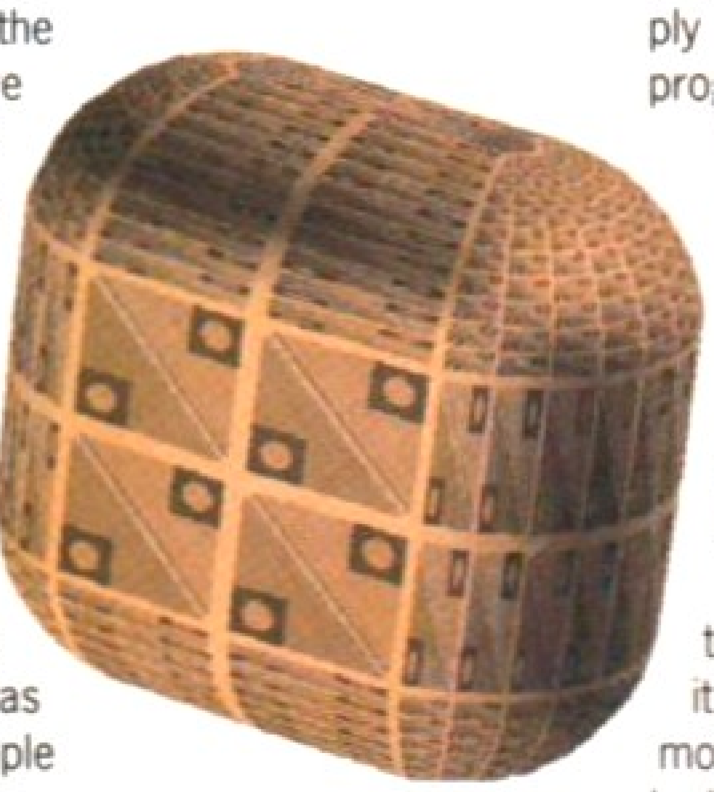
One of the most annoying things about *ProDraw* is it does a lot of things but it doesn't allow you to draw in anything other than 2D and simulate a kind of rough 3D by drawing in perspective. With *Draw 4D* you can create an object and turn it around to get the best perspective on the thing, then save it out as a clip art.

Inside the manual there's a rather weighty bit of text about 'The philosophy of the program revolves around specialisation', which goes on to say that this is the reason why the program does one job very well and doesn't attempt to be an all-purpose program. Although I agree with this, I would quibble that a method of using the objects created in the editor in some other format would have been of benefit.

Modeller

The modelling interface of the program is actually one of the best I've ever seen, and it allows you a great deal of freedom as to how and where the bits of your object are created. There is all manner of interesting tricks available to the user.

One which I thought was particularly neat was the ability to extrude a shape by clicking on the shape you wanted to extrude and then using a letter of the alphabet as the path for that extrusion. The shape is created and there you have a perfect letter, sculpted out of a sort of bar of material, the cross section of which is the shape you drew. Such things are unique to this program, and I'd like to see other modellers using this kind of simplicity.



It's such a good interface, it's a shame to limit it to merely producing clip arts for DTP. Why not introduce a module which converts the shapes to another format like *Turbo Silver, Real 3D* or even *Caligari*? *Caligari*'s was the last 3D interface I saw that was as easy to use and *Draw 4D*'s simple front-end rather resembles it.

Output

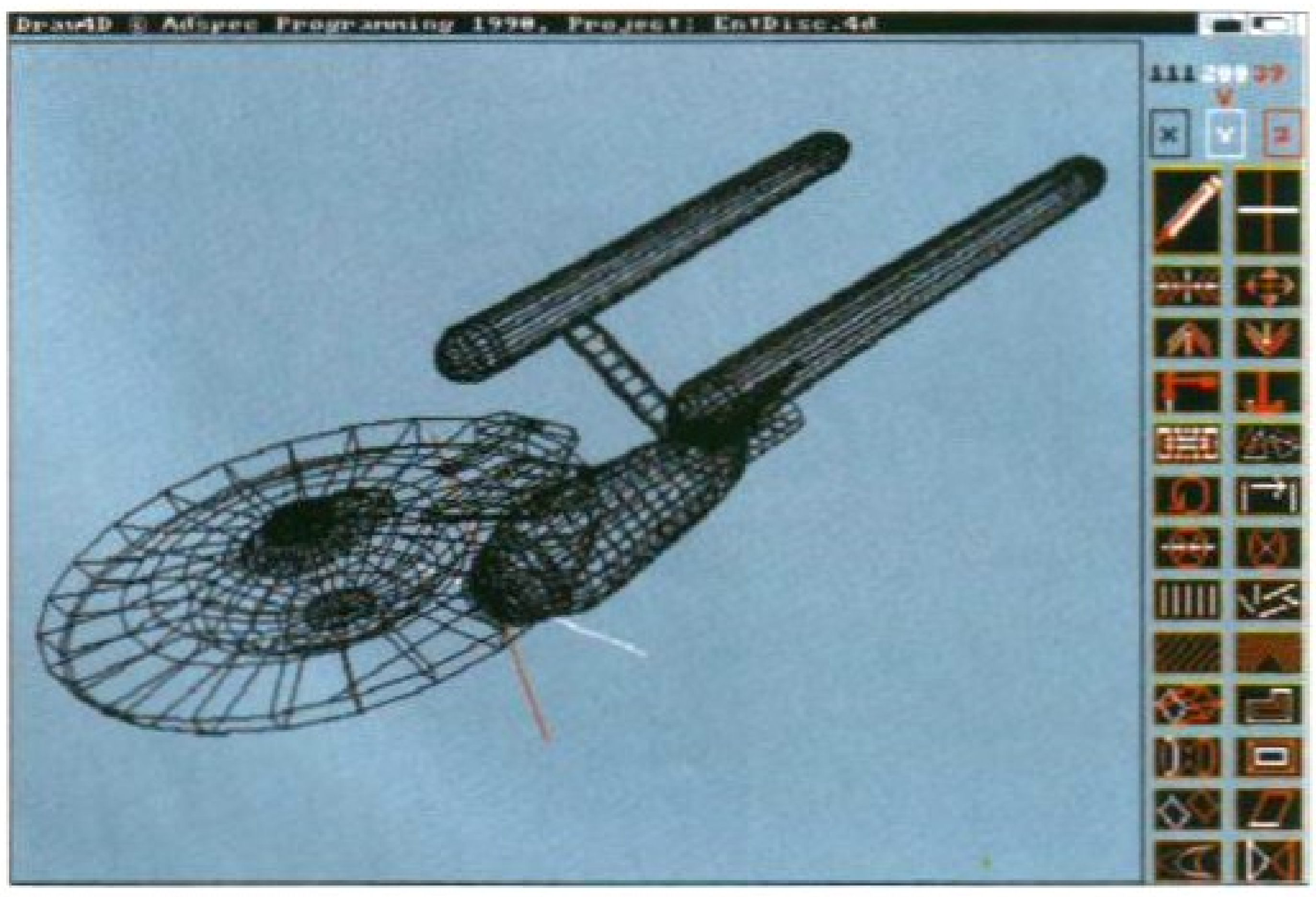
Although you can't print out directly from *D4D*, you can save the models you make as clip art in the *ProDraw* clip format. Then, in order to see how your clips look in the flesh, you simply have to boot up the *ProDraw* program and paste it onto the page.

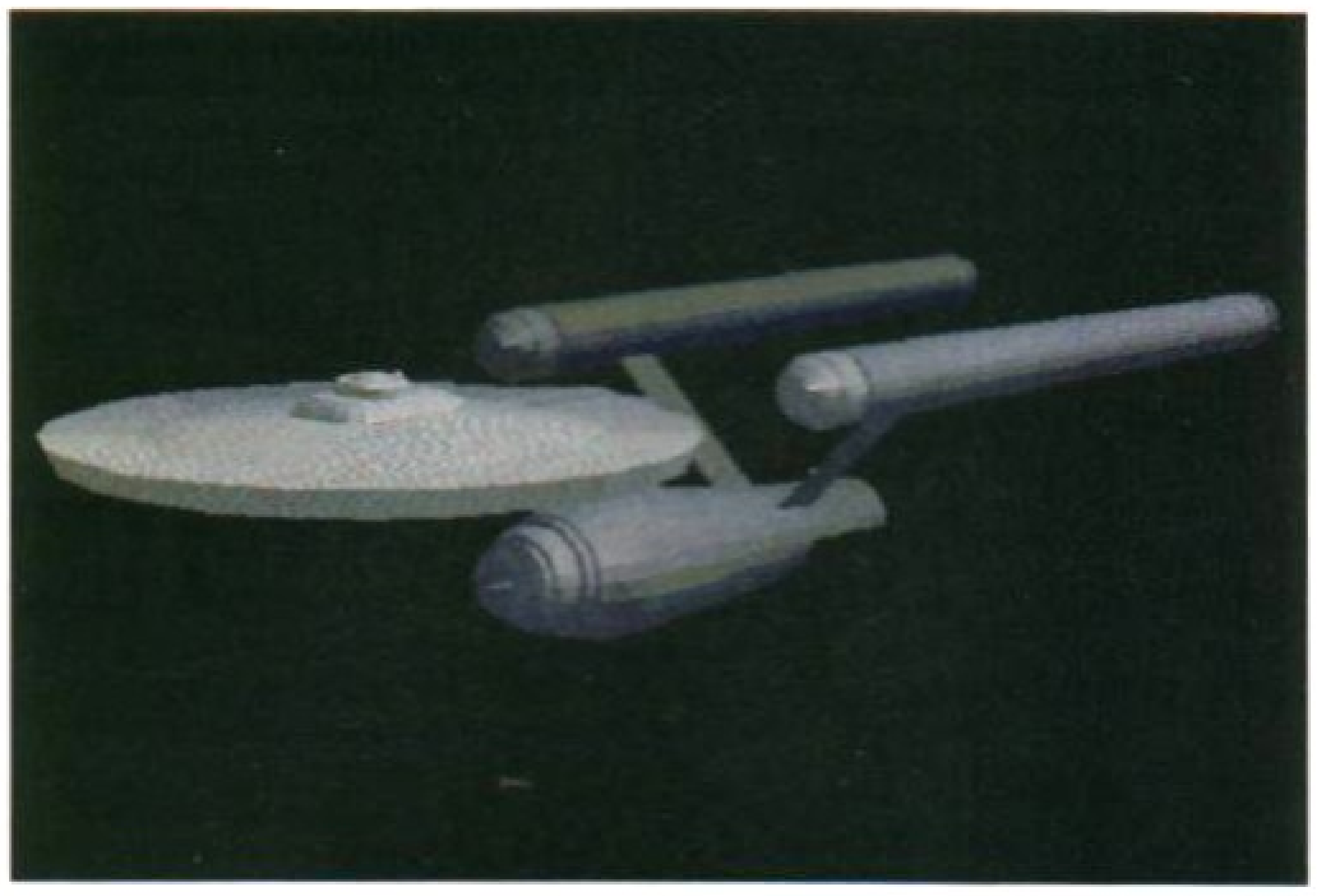
You could also just paste it into a box on a *ProPage* screen, but if the shape needs to be edited in any way, *ProDraw* is favourite. The drawing can then be printed out on any Prefs printer, although laser printers obviously give the best results.

I found the shading a little bit too subtle on my Epson clone, and it all blocked out in grey for the most part. But on the DeskJet it looked nice, although for best results I would suggest output from an image setter to bromide, especially if you intend to print from your output. Obviously if you're going out straight to film then you won't have problems.

The modeller (BELOW LEFT) is very straightforward and pleasant to use, with some unique features that allow you to construct complex shapes.

Continued overleaf ▸





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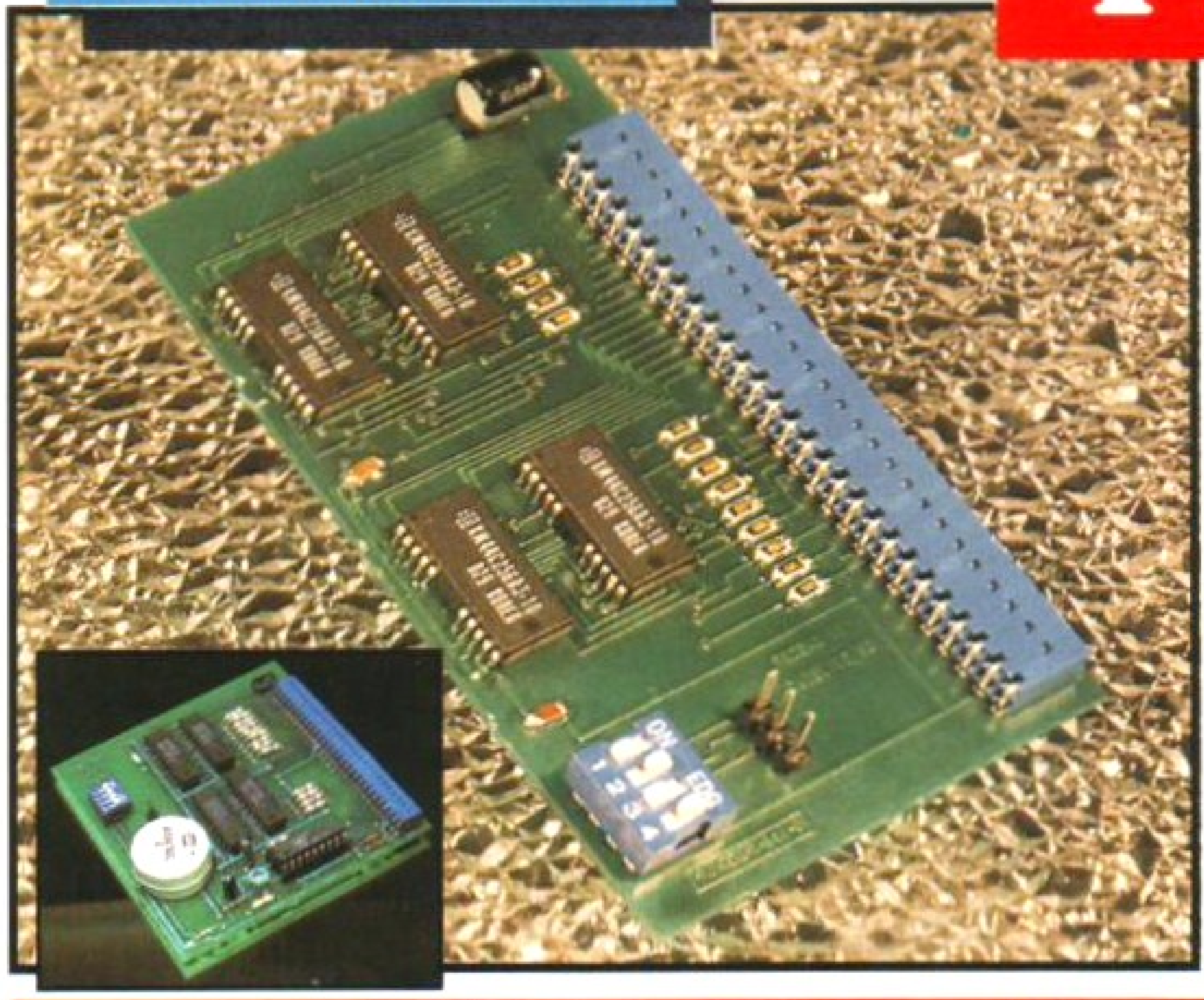
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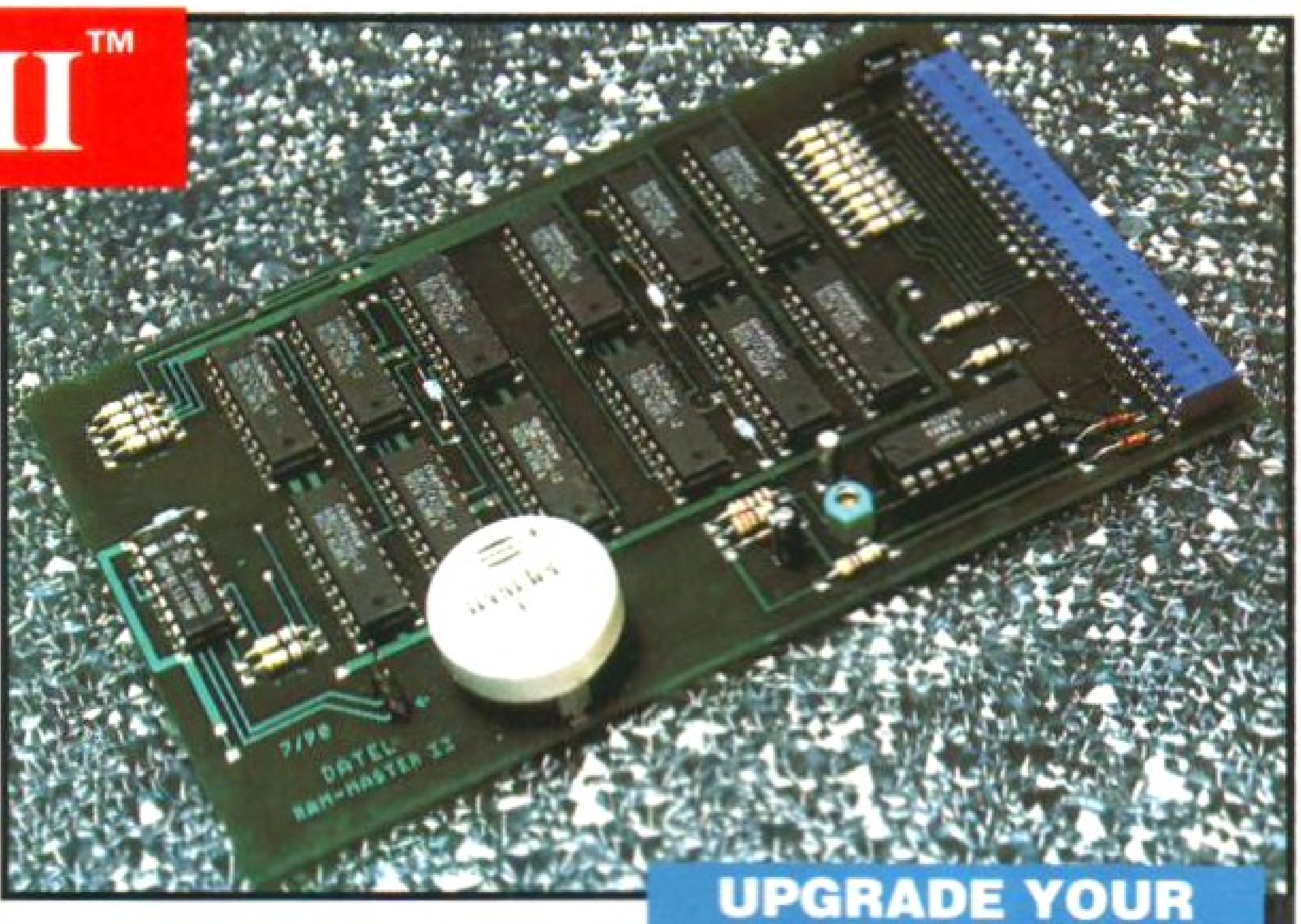
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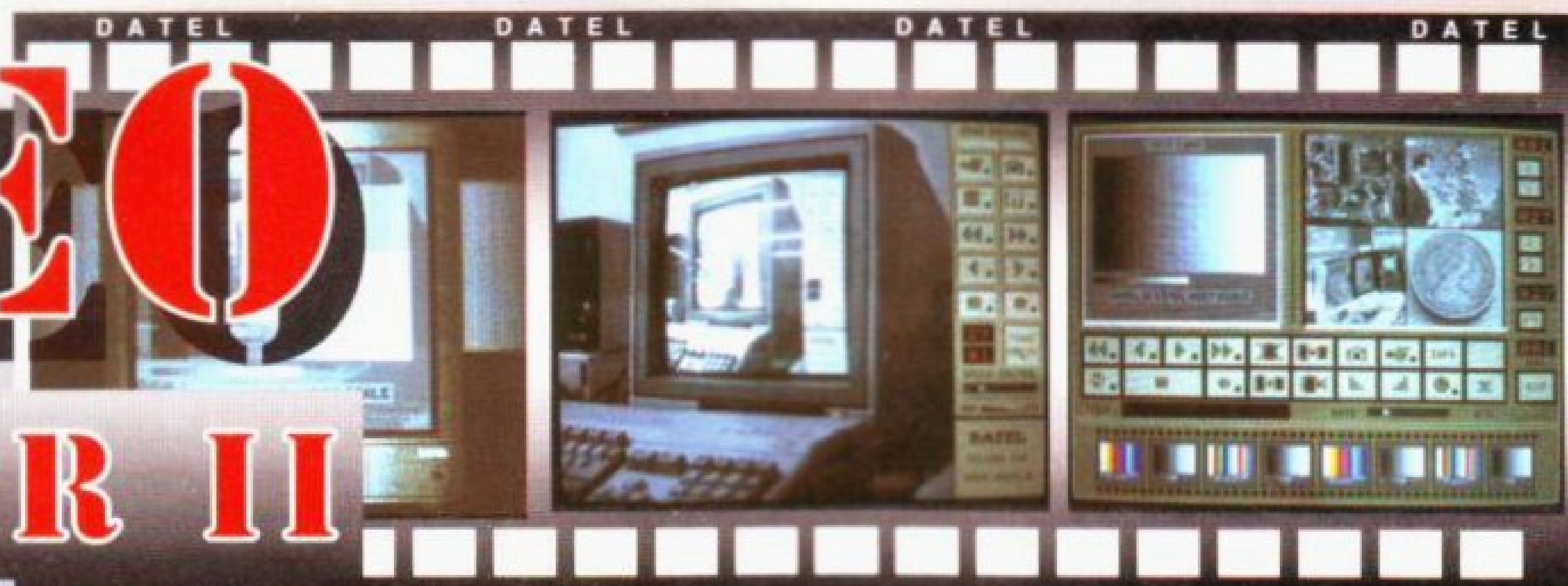
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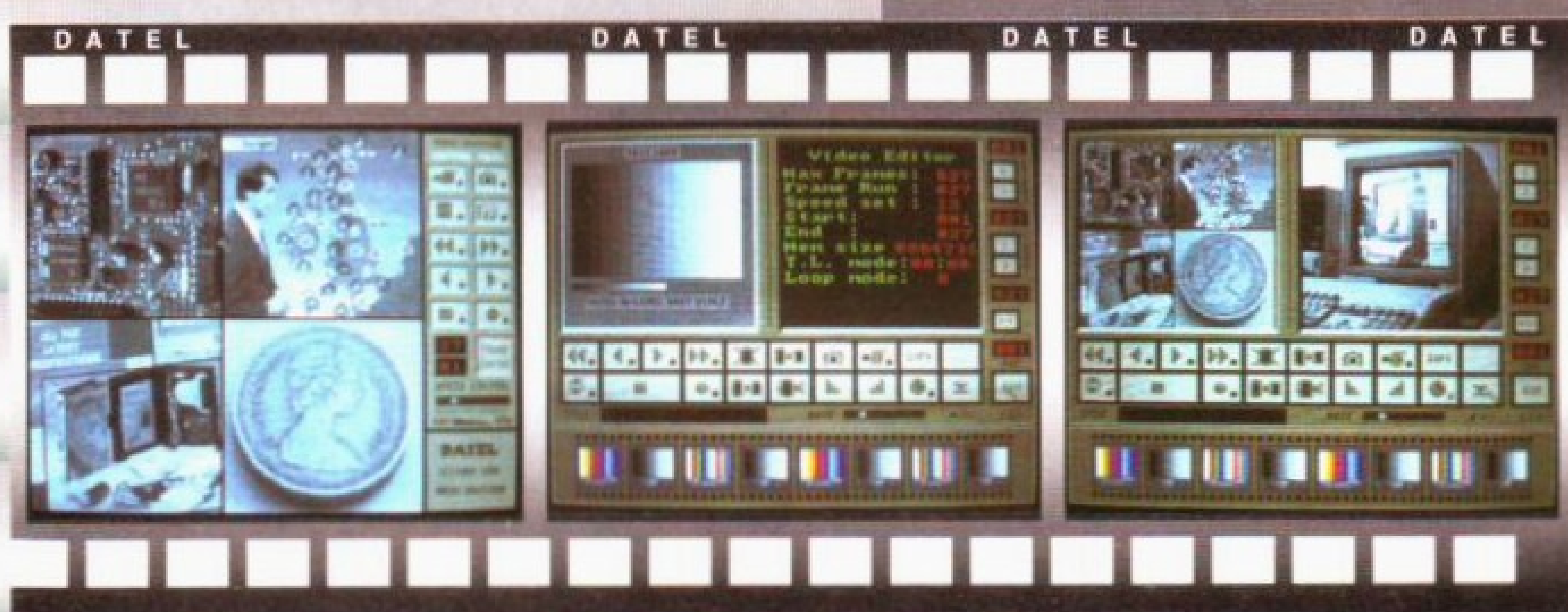
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VIDIGI

Real 3D

A real contender as the easiest-to-use 3D system; a good place to start because it's so fast on a standard A500. Limited for 'organic' shapes; good rendering; excellent mapping, especially Bumps; good (though memory-hungry) animation. Reviewed AF18.



Real 3D is a solid modelling and animation system first reviewed in AF18 where it got a qualified rave review. Since then it has undergone a considerable upgrade.

The interface is a simple, almost spartan tri-view. The upgrade has an icon palette containing most of the frequently-used tools, which is a great improvement for beginners. Unlike most 3D programs, each object is named as it is created and placed in a family tree (hierarchy) that is constantly displayed in its own window. This makes selecting objects very easy.



Making objects

Structures are created either by placing primitives on screen one-by-one or by using one of the composite tools provided. A wide range of primitives is available including triangle, rectangle, circle, prism, cube, pyramid, sphere, cylinder and hyperboloid. The composite tools allow you to combine primitives in various ways automatically.

For example, a tube is constructed using spheres and cylinders of the same diameter – one sphere at each change of direction. In this way the more conventional lathe and extrude tools are simulated more or less successfully. Some of the tools allow unusual and quite unique objects to be constructed.

Another powerful tool applies Logical or Boolean operations. In effect these allow you to construct complex cutting tools to remove irregular or repetitive shapes from objects – for example a helical gear-wheel is easy to construct by making a tool the shape of the gap between two teeth and using it to cut them out of a squat cylinder.

Overall the method of modelling is oriented very much to making engineered solids in the way you would make a real object – glueing, cutting, drilling and then punching. Organic objects can be made, as you can see in the accompanying picture, but the process is really quite involved.

The latest version (1.3) includes a utility to convert *Sculpt* objects to *Real* objects (the wooden sun on the wall was constructed in *Sculpt 3D*. These objects are faceted and – being a solid modeller – *Real3D* has no Phong smoothing, so faceted they remain.

Other means

Two other modes are available – Wireframe and Solid. Wireframe allows you to change your viewpoint on the scene interactively, rotating round the object and zooming in or out. This is one of the ways to animate the scene, flying the camera around the object, but being interactive it is rather inaccurate. Keyframe and Global (orbital path) techniques are also available which are much more precise.

Solid is in effect the rendering editor. This screen gives you a range of global parameters that can be varied to suit the image you require. Resolution, ambient lighting, dithering et cetera can all be set here before rendering.

Rendering

Rendering in *Real 3D* is usually very good but it takes a little experimentation to get it right. The quality of the images is improved by the way that materials are handled.

All objects can be 'made out of' a particular substance. The materials are set up separately in a device where the colour, surface texture, bump mapping, specular reflections, and many other properties are composed so that rusty steel, glossy plastic or even embossed leather can be simulated. Bump mapping, in particular, is now very effective in *Real3D*.

All normal Amiga resolutions are catered for plus the 1.3 version allows 24-bit RGB data to be saved or directed to a Harlequin board. This is how the SunRoom illustration shown here was produced.

Overall *Real 3D* is a powerful but easy-to-use system. The manual is a little curious but nevertheless the package is perfect to start with and more than adequate for even professional animation and rendering, especially if you want to simulate predominantly man-made objects and environments.

3D Clipart

As might be expected, lots of people are now producing ready-made 3D objects for you to render in your programs. Still the best is the Antic Design Disk series (*Sculpt* and *Turbo Silver/Imagine* formats) which includes Future, Architectural, Human, Microbot and others. The objects are very well designed, though sometimes a little memory-hungry. A recent arrival is the *Omega Face* (*Sculpt* and *Turbo Silver/Imagine* formats) from French company Leo Capricorn, an accurately-modelled series of heads used for our cover illustration. Several font sets are available, the most useful being Access Technologies' *Fancy 3D Fonts* (*Sculpt* and *Turbo Silver/Imagine* formats) . Bitmapped fonts can also be converted to 3D fonts using *Interfont* from Syndesis, or one of the Bitmap-to-3D converters. If you need to swap objects between different file formats, Syndesis also produce a range of modules in their Interchange series. *VideoScape, Sculpt, Silver/Imagine, Forms-In-Flight, Caligari* and several other formats are supported.





The Sculpt Series

The best to start with; best interface; excellent manual; no IFF or texture mapping; a bit slow; good animation. Review AF5.

Until about the middle of last year the leader of the pack, *Sculpt 3D* was the package that started the ray-tracing revolution on the Amiga. Eric Graham wowed everyone first with *The Juggler*, a demo ray-traced animation that showed just what the Amiga was capable of doing. He followed it up in quick succession with Ray Tracer, *Sculpt 3D* (the first proper commercial ray tracing package), *Sculpt-Animate3D*, and *SculptAnimate4D* (the professional version).

Sculpt uses a tri-view interface. Each window is an extension of the standard Amiga Workbench window with gadgets placed around the edge. For anyone familiar with the Amiga this makes Sculpt very easy to get to grips with and fast in operation.





Modelling

The modelling tools in *Sculpt* are reasonably comprehensive, though they have now been superceded by those contained in the *Imagine* package as the most usable. It is certainly rare to find that you cannot see a way to create any object.

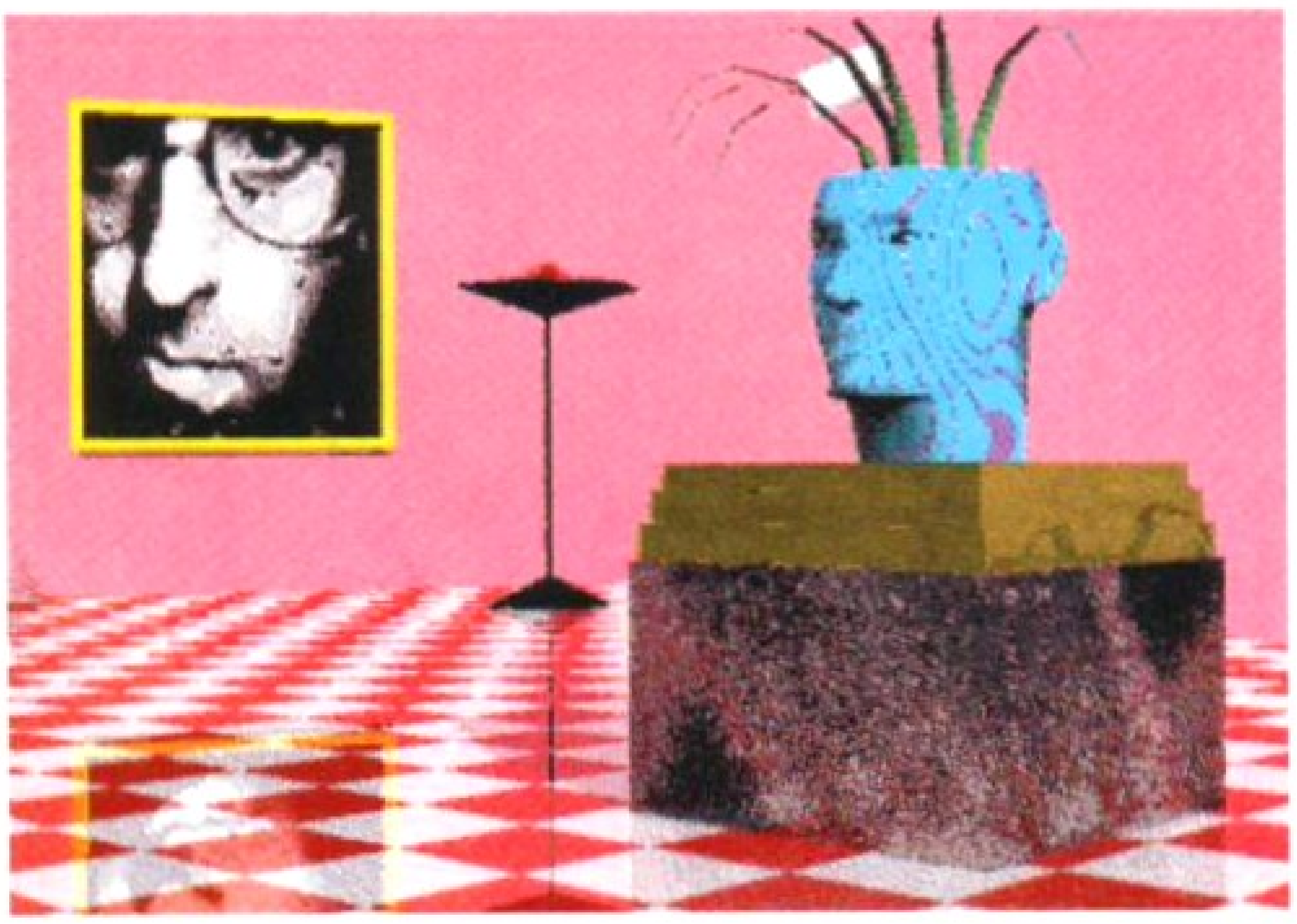
All objects can be named and a hierarchical (family tree) system is employed in order that objects can be moved either whole or in different parts. This is in fact one of the animation systems. Key frames can also be assigned so that objects can be transformed over a period of time.

Its rendering seems slow nowawdays and, because of the lack of any form of mapping, scenes look rather bland, though there are some tricks that can be employed.

In the illustration here Paul Cowan has made several surfaces slightly reflective to give them a bit of interest, and used several light sources to create complex shadows. This image is rendered in 24-bits, however, which always tends to make objects look unnaturaly smooth.

Turbo Silver

One for more advanced users; unnecessarily difficult interface; limited modelling tools; excellent rendering; first system with IFF mapping; memory hungry animation; Reviewed AF14.



The first Impulse ray-tracer has been around for years but poor marketing in Europe and a difficult interface has meant that it has been slow to make an impact. We only discovered its advantages last year.

The interface is based around frame animation; single images are treated as single frame animations. Each frame or 'cell' can be edited by double-clicking it. This puts you into the Object Editor where both objects and scenes are constructed.

Modelling

The interface uses several methods of selecting points, edges, faces, objects and groups and most of them use different colours to indicate picked, selected and unselected. All rather complex and confusing, but in fairness it works once you get used to it. The tools available also seemed rather limited when it was reviewed but *Turbo Silver* enthusiasts in the US claim that the extrude and mold by story tools are immensely powerful.

Rendering

Rendering is something else! As well as mapping multiple IFF brushes onto objects, there is an expanding series of 'coded' textures that can be applied to give brick patterns, marble, wood, wave patterns, colour gradients and much more. Amazingly, several of these can be applied at once. Added to this the surface quality can be defined very precisely with a series of parameters like reflectivity, roughness, hardness, specularity, refractive index etc. Overall the rendered finishes have to been seen to be believed.

If you are a rendering enthusiast and are prepared to spend time learning a difficult interface, *Turbo Silver* is worth a look. The arrival of *Imagine* probably means *Silver* will be available at a bargain price.

Our test Hardware

You may not have noticed – what, are you eading this with your eyes closed! – but many of the images used in this round-up and in the *Imagine* and *3D Professional* reviews are of exceptional quality. Our amazing talents as illustrators may have something to do with this (he saya modestly!), but to be honest it is more to do with the fact that they are rendered in high resolution 24-bit colour using the Amiga Centre Scotland Harlequin Frame Buffer.

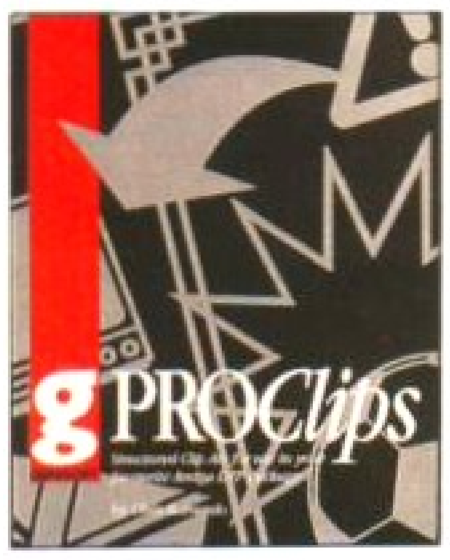
I have raved about this before, but it just has to be said again how amazing it is working in True Colour. Yes, I know, this is all very elitist as long as the boards are costing over £1500, but cheaper versions are on the way. Eventually we will all be able to have a go. If you can possibly justify the expense, you just have to have one. The Harlequin is still the only board of its type available for the Amiga in the UK and it is 'home grown'. Support it.

Good as the Harlequin is, it just has to have 24-bit RGB files to display. These take at least twice as long to render as the usual HAM images (and *they* take millennia) so some sort of accelerator is essential.

I have used both the A and B 5000 boards from Solid State Leisure and they are nothing short of miraculous – and so cheap! Now that both boards are using buffering, the problems some people experienced seem to be over and after months of intensive use they now seem to be extremely stable.

At a rough guess, using a £300 A5000 with a £70 881 floating point chip, I have done more than a year's rendering in just a few weeks. (Maybe now I can turn the damn Amiga off!) The new B5000 is much faster and even with a fast FP chip and 4Mb of 32-bit RAM there is change from £1000. That's as fast as an A3000, nearly £1000 cheaper in total and I can still run 100% of Amiga software.

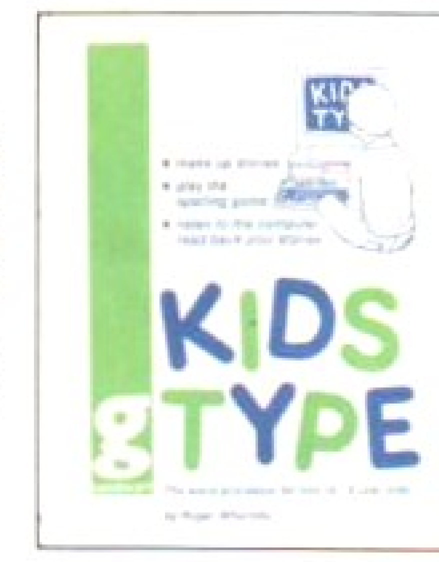
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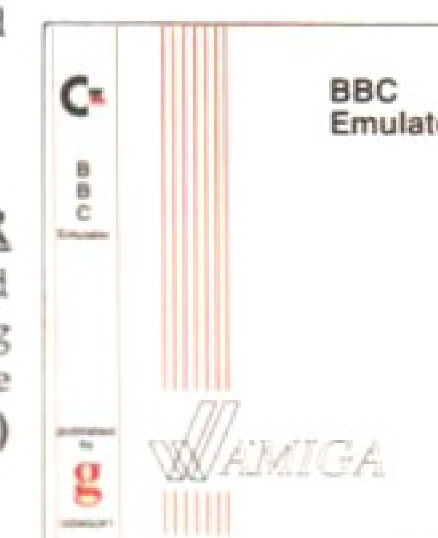
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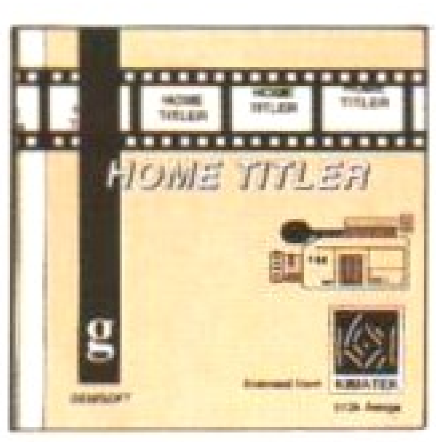
Based on Weather Report on the BBC micro and updated for use on the Amiga, Weather Watcher allows the user to keep and analyse weather data. Data can be analysed by month or by the whole year. Monthly average data tables are automatically calculated. Two different graphs can be displayed and analysed simultaneously. Comparisons of data given dates can be made.

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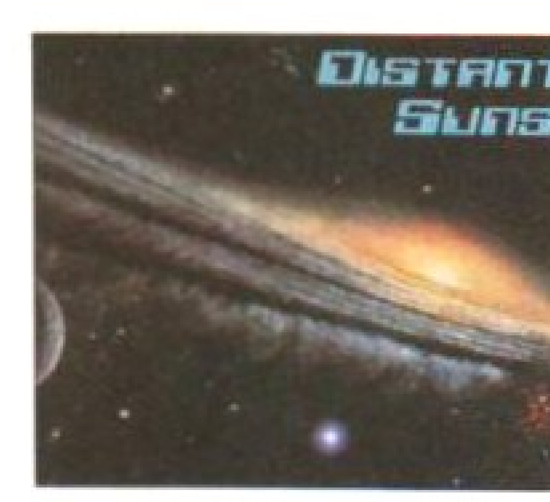
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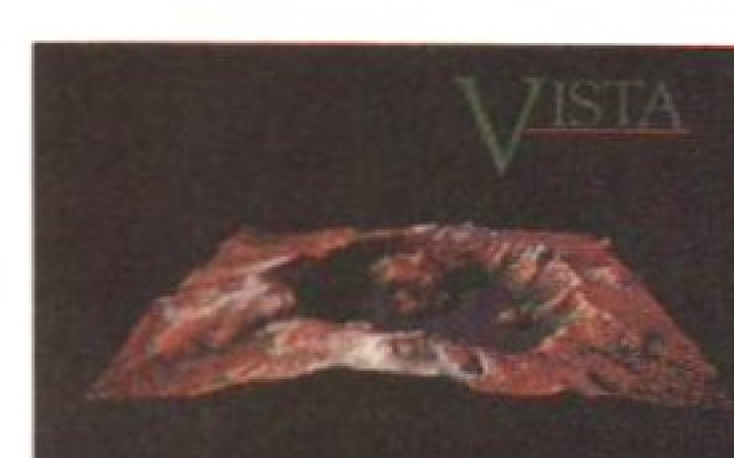
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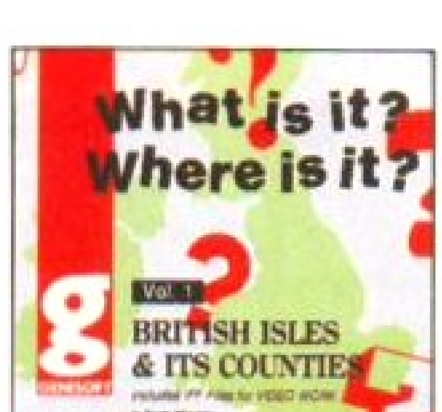
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Videoscape 3D

Outdated; difficult interface; complex animation; fast but average quality rendering; limiting use of colour. (Modelling and animation control improved by use of Modeller 3D and ProMotion)

The very first 3D modelling, rendering and animation system on the Amiga, Videoscape has always been one for the enthusiasts. Until recently much of the modelling had to be done by typing in lists of coordinate points – in the correct order – and animation involved the ability to visualise 3D objects and motions in your head.

The arrival of Modeller 3D provided the system with a decent way to make objects and scenes, and Pro/Motion now allows motion paths to be produced visually and interactively. (Pro/Motion is included in the VideoScape package, Modeller is a separate program.)

VideoScape was designed in the early days before anyone understood the significance of HAM mode and this legacy has remained with it even though it can now produce HAM pictures. Only a limited number of colours can be used and these all have a code number that must be attached in the editor.

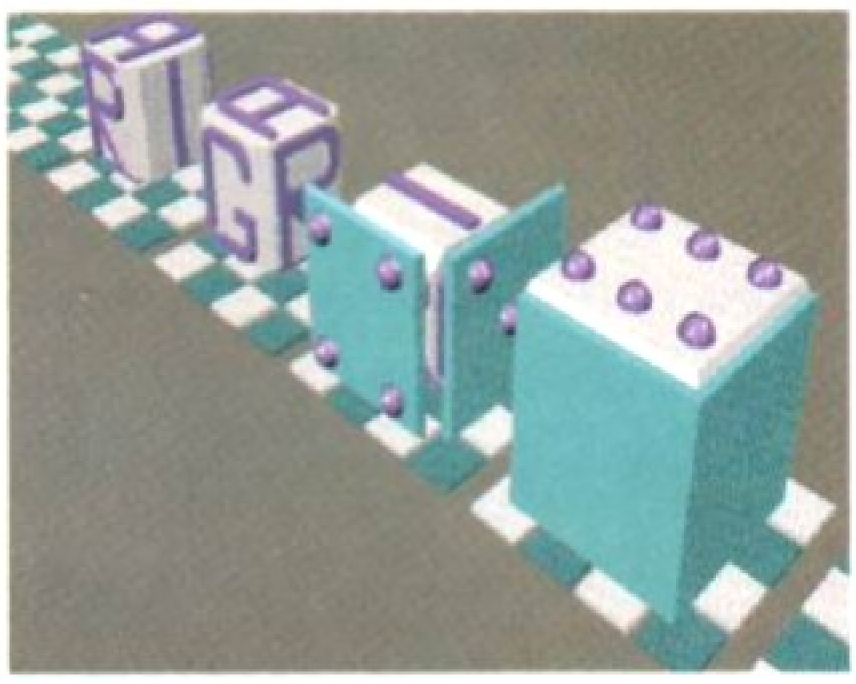


Reflective and transparent objects have a similar code but there are no other surface effects available. The rendering method used is scanline rather than true ray tracing. This means that rendering is very fast but shadows and reflections are not as effective as those in programs that do use ray tracing.

VideoScape has now been largely superceded by other, easier to use and more powerful programs. Pro/Motion however has features such as Wind and Gravity that no other system offer and this may give the system a new lease of life.

Caligari

Brilliant interface; limited modelling tools; only 16-colour rendering in High-res unless you use the four-figure professional version; the world passed it by!



Caligari was first rumoured in the January 1987 Amiga World before VideoScape or Sculpt had been heard of. Two years later it re-surfaced with an excellent interface but little else, at least in the consumer version. A professional version with ray tracing exists but who's seen it? A great pity; waste of a great interface.

The interface is a single view perspective affair that is very smooth-acting. The viewpoint can be moved interactively just by moving the mouse. Once the scene gets complex, all objects are converted to 'bounding boxes' for the duration of the transformation, a trick Forms In Flight could have learned.

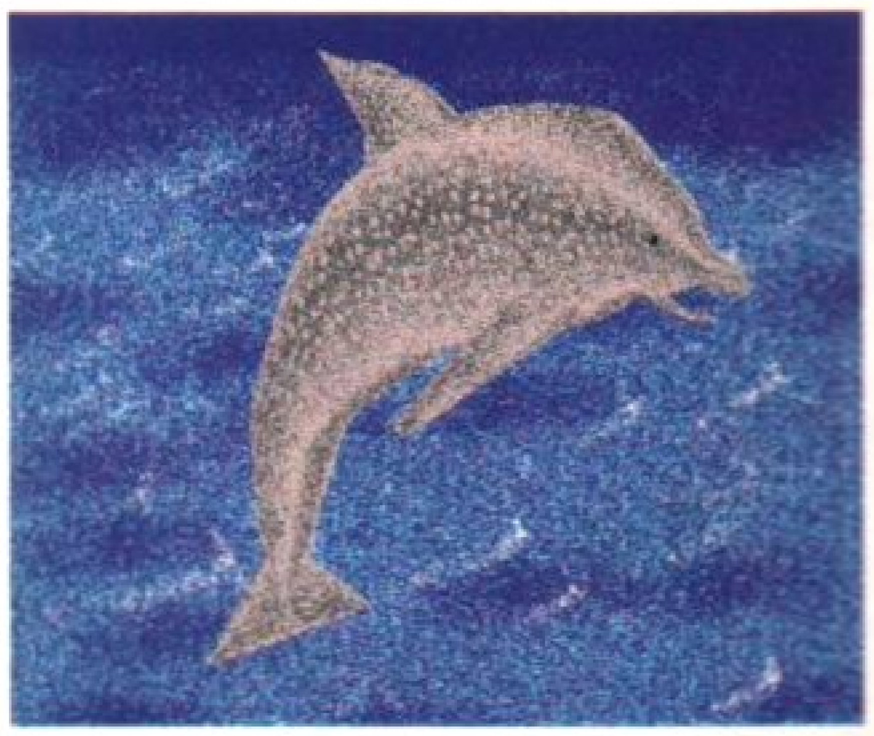
Object rotation, scaling and move is also in real time with the mouse using a bounding box. A reasonable range of primitive objects is provided plus glue, lathe and extrusion but no other modelling tool and no point editing!

Rendering is elementary. Only 16 or 32 colours can be used, though with dithering the apparent number goes up to about 70. Objects can have specular highlights. There is no ray tracing and no animation. Overall Caligari is only half a program.

Forms-in-Flight 2

Slow perspective interface; awful movable menus; no HAM or ray tracing; difficult but rewarding 'patch' modelling method; IFF brush mapping; phong shading; animation.

Version 2 of this 'original' (for which, read 'peculiar') modelling program has been around for several years and is now looking very clunky. Never an easy program, it nonetheless included some wonderful ideas that really should have been developed further.



The interface is awful but could have been good. Top, front, end or perspective view is limited. Perspective view is mouse controlled but very slow when objects are present. If only the bounding box method had been used!

Pop-up menus appear wherever you press the right button, a good idea, but multiple level menus are too complex.

Objects in F-i-F are all 'surfaces', either FSURF's (flat surfaces) or QSURF's (quad surfaces). Quad surfaces are surface 'patches'; in other words they are flat surfaces with four curves, bent like the patch on the knee of a pair of jeans. This method of working is very powerful because the number of points used to make up the curve can be varied as you work.

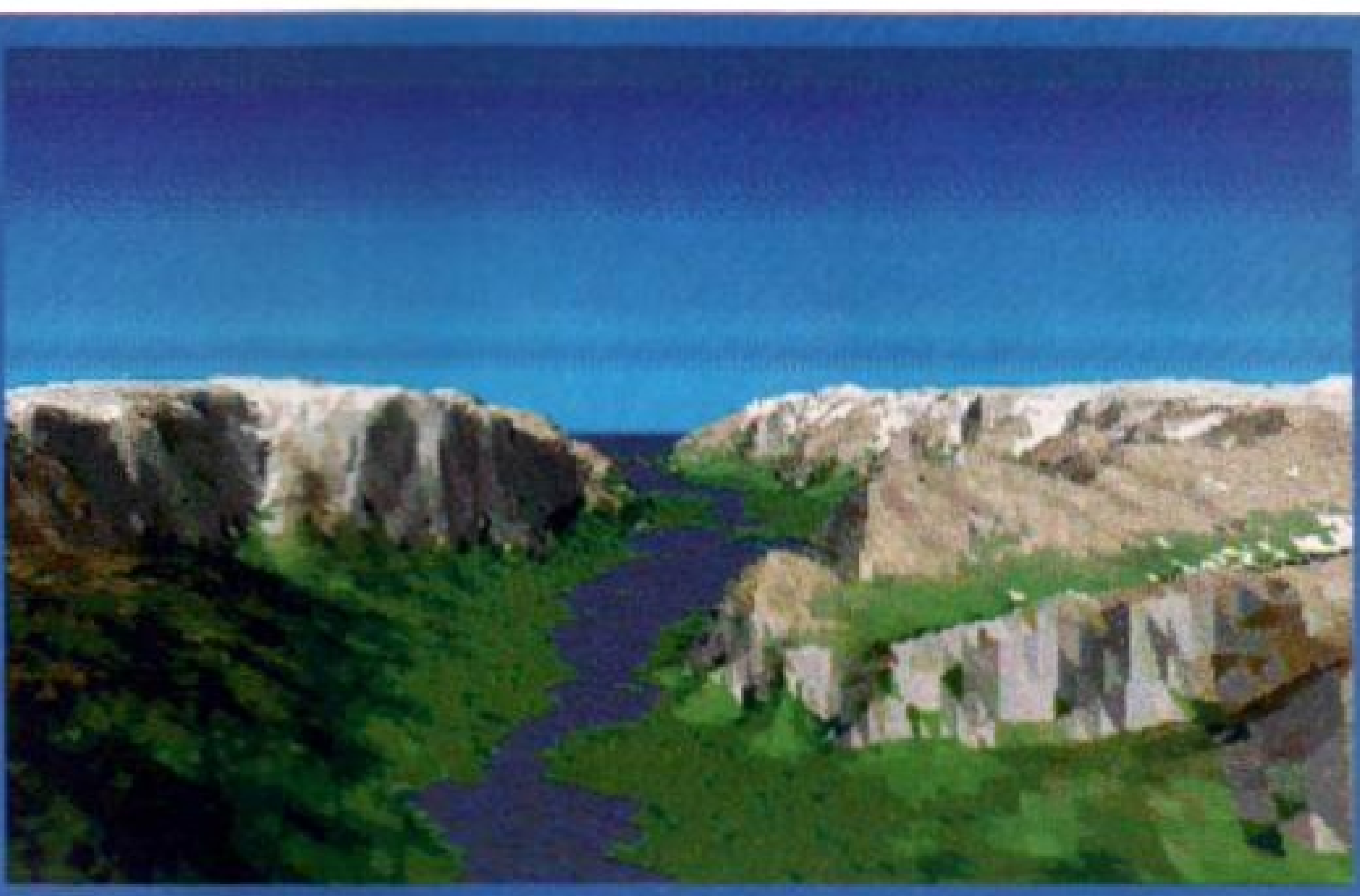
Rendering is limited to 32 colours so even with IFF mapping images look dull. Animation is rudimentary. A might-have-been.

Scene Generators

Landscape is difficult to simulate in 3D scenes so several scene generators have become available recently. The simplest is the Turbo Silver Terrain Module from Impulse. This uses the normal polygon system of Silver to generate a reasonable landscape of hills, mountains and valleys.

Scene Generator from Natural Graphics uses a fractal method to generate natural-looking landscapes complete with vegetation, snow and water. Images can be saved as an IFF file or as a model, but the format used is not compatible with any other 3D system.

Much more comprehensive is Vista, now in version 2. Vista also uses a fractal method, but provides much more control over the land form. Actual real landscapes such as Mount St Helens can be loaded in and generated as HAM renders. Animation is supported and objects can be saved in useful formats.



Animation: Apprentice Series

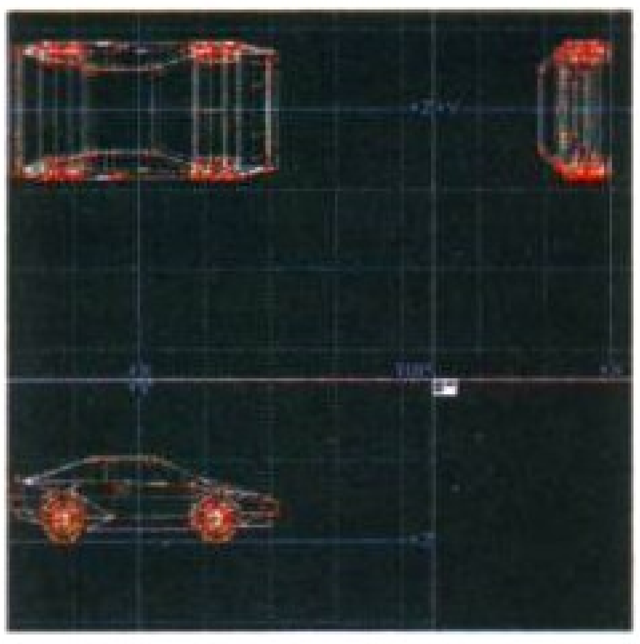
Quirky and difficult interface; rubbish manual; weird modelling method; the Citroen 2CV of the 3D world; some useful utility programs.

Martin Hash's *Animator* series has been around for a long time. Modelling involves creating all the parts of an object and linking them together on a 'stick-figure' framework that can be manipulated for movement, animation etc. Each part can have a HAM brush mapped onto it.

When I tried it, the whole system seemed too clunky to use but that was partly the useless manual. There are many Hash *Animation* enthusiasts in the States. Rendering and animation is quite good but quirky.

As modules to go with *Animator* are; Multiplane, Editor, SoundTrack, Effects, Stand, Rotoscope, Flipper, Sculpt, Titler, Quick2D and others. Most of these are excellent utilities that should be available in the UK. Pity they are not!

Modeller 3D



Modeller only; designed for VideoScape, limited for other systems; reasonable modelling tools; no rendering; no animation; good manual.

Anyone who has used the plain vanilla version of *VideoScape3D* will have rejoiced at the arrival of *Modeller3D*. It should really be sold with *VideoScape* and *Pro/Motion* as one package.

Interface can be Quad View, though tri-view is much quicker. The usual tools are available plus more sophisticated ones like Remap (allows objects to be distorted, sheared and twisted) and Array (multiple copies).One of the few systems to offer true layering like good CAD programs.

Although it does not animate, Modeller can be used to generate camera and motion files for VideoScape though Pro/Motion does it better. Pity Aegis/Oxxi never properly merged these three programs because you really need all three.

C-Light

Now public domain, so cheap'n'cheerful; no HAM; crude animation; no mapping; simple single perspective view; solid modeller so no point editing; limited primitives; no modelling tools; what do you expect for free?

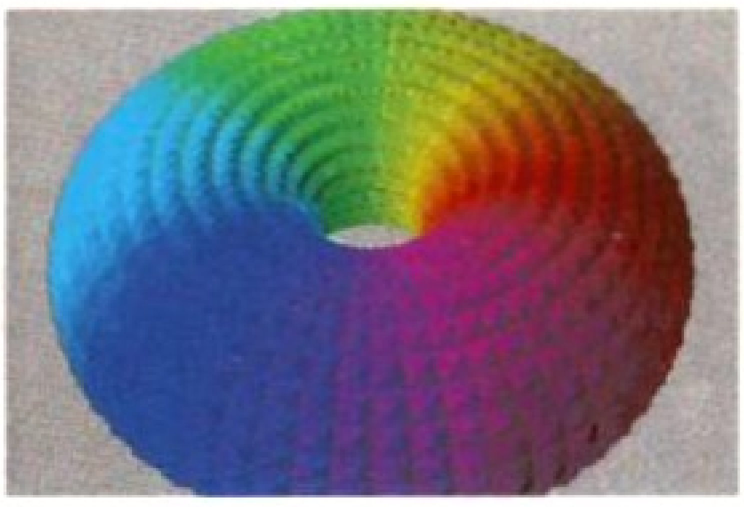
If you want to try out 3D modelling but cannot afford to buy a package this is for you. Very simple, crude interface with icons for each of the objects types (just ball, can, and cube), lights, colours, view, delete and change.

Selecting an object icon places the basic shape on screen and brings up a requester that allows the object to be scaled, squashed rotated and moved using simple sliders. A choice of three colour gradients can be chosen for the object, or mirror finish. The Eye icon determines the viewer's position and the Lite provides lights. The scene is saved and loaded into *C-LightII*, the ray tracer program .

The ray tracer allows ambient light level, colour dithering, shadows and anti-aliasing to be controlled. Selecting GO starts the render. Thats it! Simple but effective.



Page Render



Mathematically exact modelling, animation and rendering; CAD-like interface; no shading; wonderful range of array manipulations; animation with PageFlipper; not really for the beginner.

At the opposite end of the spectrum from C-Light, Page Render allows complex arrays of elaborate objects to be modelled and rendered. Designed for creating images from scripts, though icon based interface is also used.

Single perspective view is nice with script window slid out of sight at the bottom of the screen until required. Icon window just above this, so positioned conveniently across bottom of screen. Huge range of modelling options expanded further if you use scripts. Once an object is built it can be repeated many times in an array (as if at the corners of a grid). This array can then be manipulated in weird and wonderful ways eg Funnel, Arch, Dome, Crevice.

Scenes can be ray traced and numerous strange light sources added. A quite different approach to 3D modelling and rendering that may appeal more to the scientifically minded. (But that doesn't mean it's not fun!)

2D to 3D Converters

Some things are inevitably easier to do in a 2D program: text, Logos, silhouettes, complex outline drawings, relief carvings, embossed surfaces – all are best produced flat first. But how to transfer them to 3D? The easy way is to convert the outline of the drawing into a set of vertices and lines and extrude them for use in a 3D program.



DigiWorks 3D by Access Technologies detects the edges of the drawing automatically and traces them. This trace is then converted to a set of vertices which can be edited to get the best fit. Finally the vertices and lines are extruded into 3D as far as you wish.

DigiWorks can only work with basic outlines: Pixel 3D, on the other hand, can edge-detect every colour in a picture and produce an extruded outline with filled ends that are the same colour as the original bitmap. Pixel 3D provides no editing tools or threshold control, but it claims not to need them...



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News Round up

And that's by all means not all! As you may have gathered from the preceding pages it's been quite a substantial year for the Amiga's graphics.

As well as the packages that we have used (all those featured above), there are several available that we know of but have not used, several that are not available in the UK, and several rumours. In no particular order they are:

Germany seems to have taken the Amiga very much to its heart, a fact reflected in the number of hardware and software companies that have appeared recently. *REFLECTIONS* is a 3D program developed by an enthusiast to produce his own animations but now marketed widely in Germany. Once the manual has been translated into English we should also be able to give it a try. The brief look that I have given it showed how well it uses light sources to give very realistic effects.

LIGHTWAVE 3D has to come at the top of anyone's list. Allen Hastings wrote the first commercially available 3D package for the Amiga, *VideoScape*. His latest effort is bundled with probably the most famous piece of Amiga hardware short of the Amiga itself – NewTek's *Video Toaster*.

At the moment it looks like *Toaster* is at least a year away from these shores and *LightWave* with it. A full list of features is difficult to come by (I don't know why) but it is certainly an easy-to-use, smoothly operating perspective-view system with many extremely powerful features.

Like *VideoScape* it uses Phong shading rather than ray-tracing to enable it to render extremely fast, but with semi-trace features like shadows for realism. IFF and coded texture mapping, fractal 'noise', bump mapping, fog and many other effects are available to ensure highly realistic rendering, plus key-frame animation.

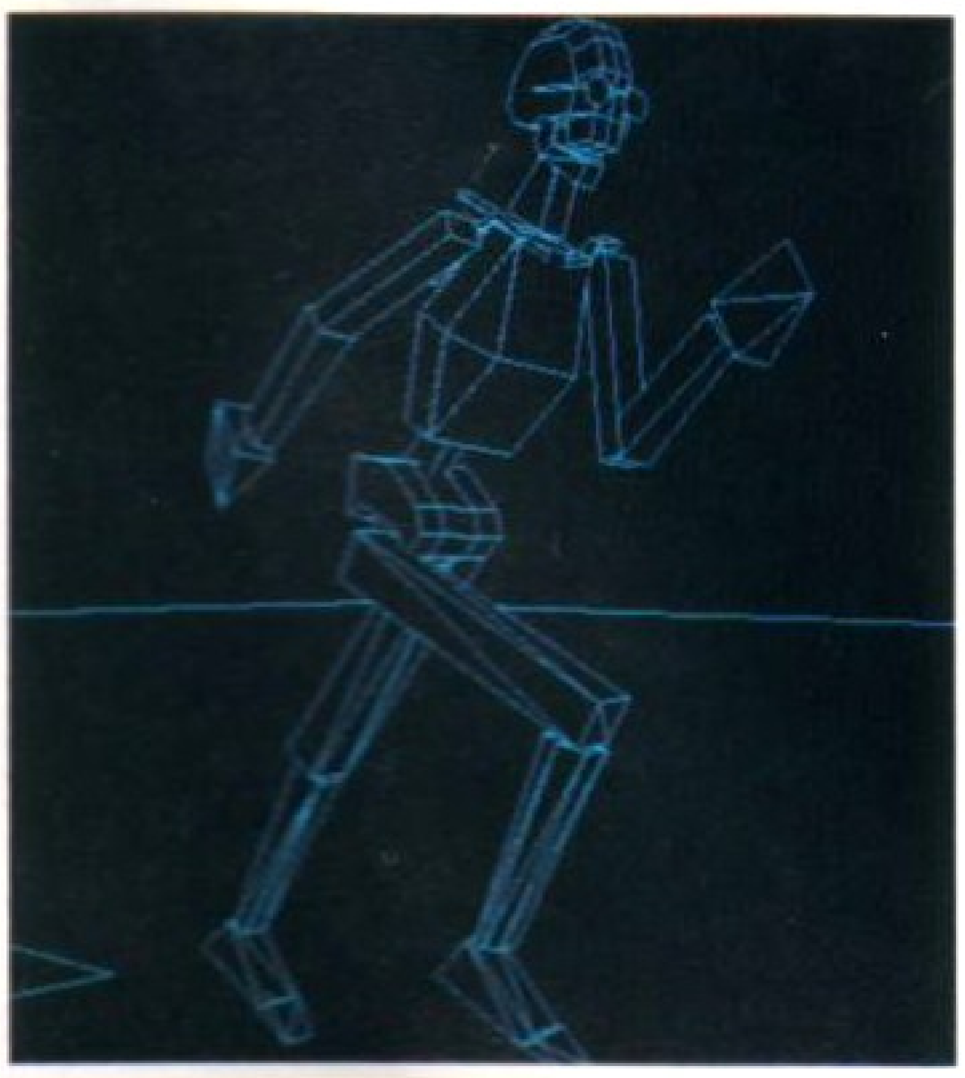
Another completely new program from one of the originals is *ANIMATION JOURNEYMAN* from Martin Hash. Again I have not used it but by all accounts it is once again a very different piece of software altogether, with Martin taking the 'let's be original' Citroen route again.

The basic principle is that of a spline patch, something like that used by *Forms-in-Flight* but very much better implemented. Spline patch objects have no polygons or faces but instead use calculated curves to define surfaces. If you deform the curve the whole surface bends smoothly to match. This is a very sophisticated principle that allows objects to be modelled almost like clay, and provides a much more accurate way to represent smooth surfaces.

When animating, the smooth bends makes possible very much smoother and more realistic movements with objects flexing and twisting naturalistically. As soon as we can get hold of *Journeyman* it will be reviewed in these pages.

IGOR is designed specifically as a relatively low-cost system for the preparation of 3D objects and animations for rendering on top-end graphics systems like *Spacewards Matisse*. A Wireframe preview mode and limited rendering allow animations to be fine tuned, the operator 'rocking and rolling' back and forward frame by frame using the shuttle function.

Multiple cameras, hierarchical motion, squash, stretch, insert and append allow sequences to be edited, made more complex or otherwise transformed. *IGOR* will probably never be made available to the average consumer; the software alone costs £3000.



SUPPLIERS

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Imagine	Impulse	Precision	081 330 7166	£217.35 + vat
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Draw 4D	Adspec Programming	Surface UK	081 566 6677	POA
Real 3D	Realsoft Finland	Amiga Centre Scotland	031 557 4242	Various new POA
Sculpt	Byte by Byte	Amiga Centre Scotland	031 557 4242	Various £130-£376
Turbo Silver	Impulse	Precision	081 330 7166	£121.69 + vat
Videoscape	Oxxi	Precision		139.09 + vat
Caligari	Octree	Currently no supplier in UK		
Forms in Flight 2	Micro Magic	Amiga Centre Scotland	031 557 4242	£80 (few left)
Animation Apprentice	Hash Enterprises	Amiga Centre Scotland	031 557 4242	£199
Modeller 3D	Oxxi	No price or supplier available		
C Light	Artronic	PD (Senlac disk 1003)	0424 753070	
Page Render 3D	Mindware	Precision	081 330 7166	£121.70 + vat
Igor	IDS	Not on general release	0273 685805	POA
Pixel 3D	Axiom Software	Precision	081 330 7166	69.52 + vat
DigiWorks 3D	Access Technologies	Precision	081 330 7166	£86.99 + vat
Design Disk Series	Antic	Precision	081 330 7166	£21.70 + vat
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Most of the software in this review is also likely to be available from Silica/SDL (081 309 1111) and HB Marketing (0753 686000).

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AMOS NEWS

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4. Pick-up-a-puzzle (1mb jigsaw)
5. CrossFire (1mb game)
6. Balloonacy (1mb game)
7. Family History DB (1mb utility)
8. Simon/Space Maths (1mb educ)
9. Maths Calculator (1mb educ)
10. Gobbit/Pontoon (1mb game)

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The **AMOS User Club** goes from strength to strength and now has more than 1,700 enthusiastic members willing to share their knowledge with you. The bi-monthly newsletter is already on issue three, and its publishing arm, Shadow Software, has released **AMOS Tome**, a super-fast eight-directional map extension with the map editor and five sample games – all for £19.99 (Club Members) or £24.99 (non-members). Add £5 for overseas postage. Write to the Club at: 1, Lower Moor, Whiddon Valley, Barnstaple, North Devon EX32 8NW.

... and, amazingly, two more!

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Every time an Amiga is demonstrated, someone always shouts "It's not IBM PC compatible!". To experienced Amiga-users this isn't a problem – you didn't buy a superior computer to use outdated PC software.

It would, though, be nice to have the option. If you use a PC at work or in education it's handy to be able to take your work home with you. So Commodore released *Transformer*, software that enabled PC software to be run, albeit at a very slow pace.

Later on Commodore released their excellent Bridgeboards. These plugged into an A2000, and together with a 5.25-inch drive could run the majority of PC software. But there

Can you tell the difference between Stork and butter? Yes, the one on the right is the Amiga – but with the Vortex ATonce card installed, it will happily pretend to be an IBM PC-AT compatible.



People often want to run PC software on their Amigas. **PAT McDONALD** checks out the latest PC emulator from the veteran German company Vortex.

Vortex ATonce

PC Emulator ■ £199 ■ Silica 081 309 1111

was no A500 PC emulator unti last year when the KCS Bitcon board was released. This plugs into the memory expansion port of the A500.

Now the German company Vortex have developed an internal board for the Amiga. It appears to be a very desirable expansion indeed for those who need a powerful emulator...

Enter ATonce

The ATonce sits on a small board, about 8cm x 10cm. All the components are surface-mounted, and the construction quality is high – it's a well-designed board. To fit it, you unscrew the case from your machine, take out the standard processor, and plug the board in the processor slot.

A2000 or A1500 owners need to fit a special adaptor board to use the ATonce – presumably the board is the wrong shape to fit inside these.

There's also a Gary adaptor – a small widget to fit between the Gary chip and the motherboard (this is not essential but it can boost the speed of the board).

Starting up

The included set-up software has to be run first to get your machine to behave like a PC. This is easy enough (just bung the disk in the drive) but you are suddenly faced with a huge text file which displays automatically.

This is the latest updated documentation, and in this way it forces you to read it. You don't have to (the ATonce running procedure is pretty straightforward after this) but it makes sense to make the effort. The file contains a lot of technical information that you don't find in the manual – see the panel on this page for selected extracts.

You can click on the icon to run ATonce straight away, this gives you an AT compatible PC with 512K of memory. There is an installation program to set up the system to taste.

From this program, you can select how much memory is available to the PC, which graphics system it will use (CGA, Hercules, Olivetti or Toshiba TS3100). You can also tell the system to look at particular floppy drives as PC drives. ATonce will cope



BOTH-AT-ONCE
The ATonce will happily multi-task alongside Workbench, giving you the best of both worlds.

SELECTED EXTRACTS

The underlying idea behind the ATonce is that you have a PC running alongside your Amiga. Flicking between the two systems is acheived by pressing the left Amiga key and then N or M – and then you have the best of both worlds.

It's a nice idea, but do bear in mind that all the bits plugged into your Amiga have to be shared with the PC. If you just have 512K of RAM, then the PC is only going to get 256K of that or less: which is not enough for many PC programs. Your Amiga is going to feel positively tied up with a miniscule 100K or less.

The good news is that as your Amiga gets more powerful, so does the ATonce. If you have an AdRAM 540 or similar RAM expansion (one that provides more than 512K of RAM internally) the ATonce can happily use the extra memory. The same goes for RAM plugged in externally.

If you're Amiga has 1MB of memory, then you can easily get a 512K standard PC. A 1.5 MB gives the maximum amount of standard PC memory – 640K (plus a bit more for your Amiga to work with). If you have even more memory, this can be handed over to the ATonce as extended memory (for things like PC RAM disks or printer buffers) or as expanded memory (for PC programs which use more than 640K, like *Windows 3*).

No matter what sort of memory expansion you have, the ATonce can cope. It needs to have the correct mode set though – there are 11 of these, so a bit of trial and error is needed to set it up, unless you can understand Amiga technospeak.

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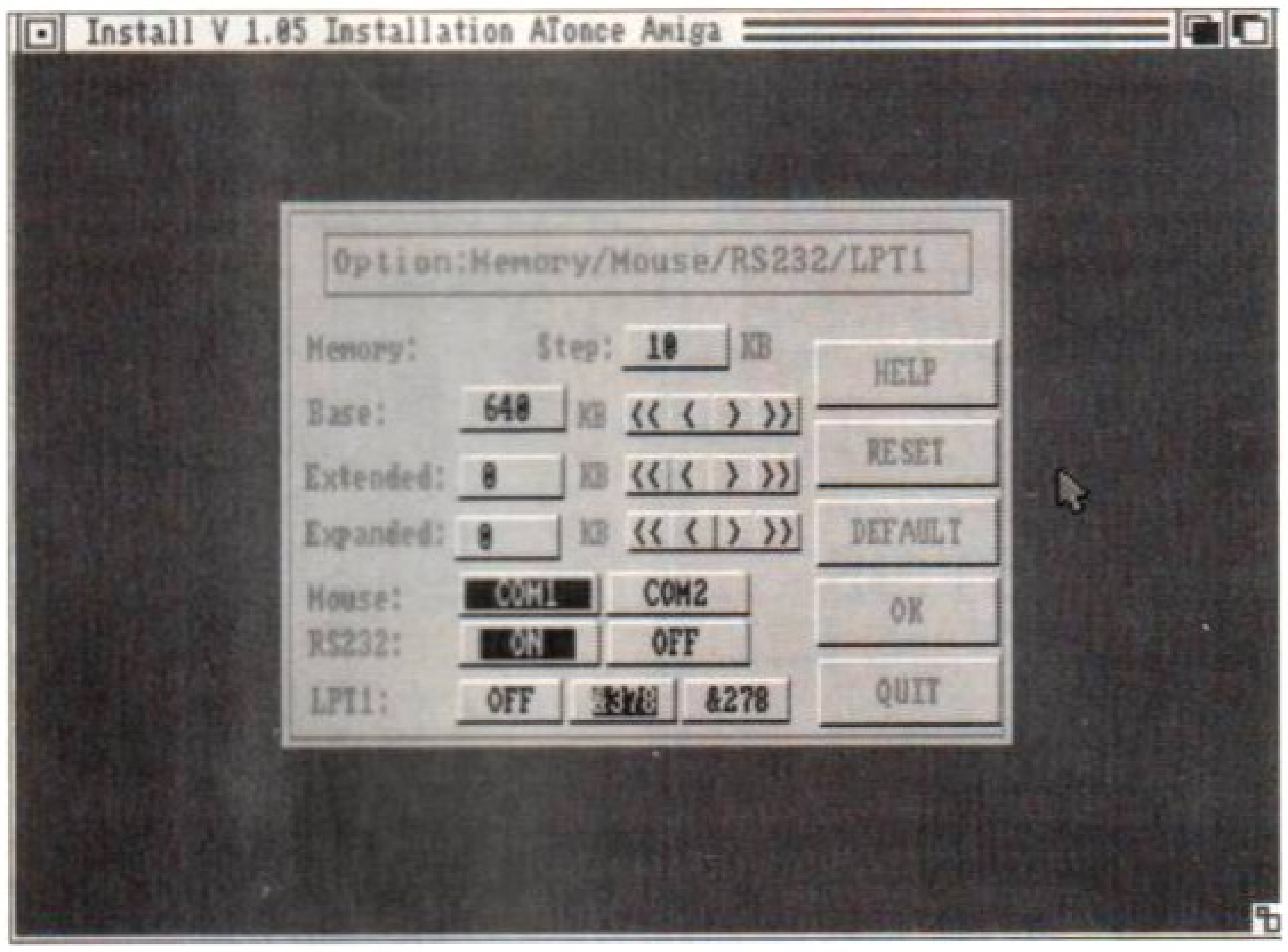
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INSTALLATION
The install program on the ATonce disk is very easy to use, there is a help button on every procedure.

with 3.5-inch or 5.25-inch drives with no problems, but double density 1.44 MB drives are not supported yet (they are still uncommon on the Amiga).

You can also select which port the PC will expect the mouse to be connected to and which serial port the PC will use. Note that if the PC is using the serial port, then your Amiga cannot use it. You also select which hard drive partition you want the ATonce to look at as a PC partition: more on this later.

Upon double clicking on the ATonce icon itself, the whole Amiga system reboots. You end up on a PC like text screen, where the program methodically checks all the memory allocated to it before asking you to insert an MS-DOS boot disk.

There's just one problem: you don't get an MS-DOS system disk with the ATonce. The board we had booted quite happily from a variety of MS-DOS boot disks – Tandon, Epson and Amstrad. The real time clock on the Amiga is treated like an AT clock.

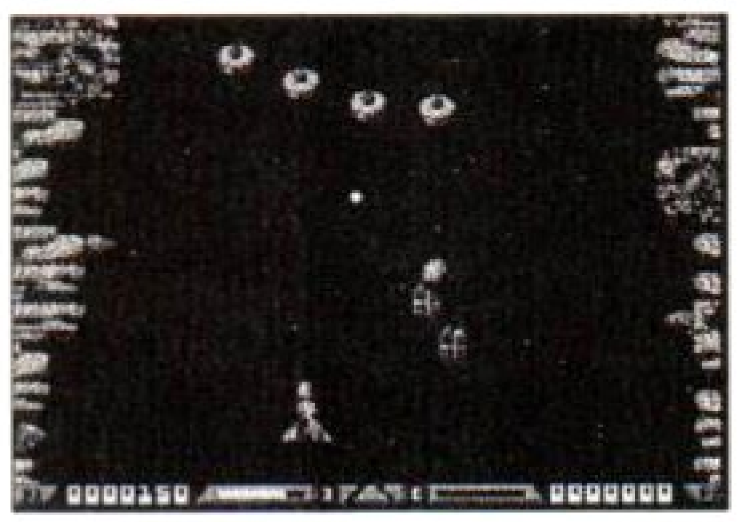
Welcome to PC land

You end up with the familiar MS-DOS 'A>' prompt, and after that the machine behaved well. Setting it up for a decent 7 MHz AT standard can be tricky, especially if you're not familiar with the Amiga.

I tried *WordStar*, and that loaded without any fuss. Next was *LetterPerfect*, which has to be unpacked onto several PC disks. After formatting a few blanks, the package went onto the disks and worked fine. After a variety of games and databases, I couldn't find one that didn't work.

Norton Utilties kicked up a fuss, but after changing the graphics adaptor (Vortex do supply a few PC utilities to do this) all those diagnostics beloved of PC users worked fine. You often find yourself tinkering with the graphics mode to get the best result with a particular piece of software.

The ATonce Norton speed value is about 6.1, which is nippy as PCs go. To achieve this, though, the software has to be finely tuned to your Amiga – there are a couple of different revisions which make a difference to the speed of the ATonce.



The ATonce can even run PC games without causing a fuss – see what PC owners have to put up with in terms of graphics. The colours used by the graphics system can be configured to any of the Amiga's 4096 different hues.

When the system was working with more than four colours it became slow at updating the screen, because all the graphics handling is done by software, so it can't cope with rapid screen transitions.

Hard disks too

The ATonce will let you use partitions of your hard drive as PC areas. You have to set up your hard drive with a PC-only partition greater than 5MB in size – which is a big chunk out of the average 40MB hard drive.

> “It will let you use partitions of your hard drive as PC areas. You have to set up your hard drive with a PC-only partition greater than 5MBin size – which is a big chunk out of the average 40MB hard drive.”

Next, you have to setup the installation program to look at the hard drive as an MS-DOS partition. Up to 24 partitions can be given in this way, from C: right through to Z:.

After that, you have to boot up your MS-DOS disk, get it to format the PC partition(s) and you're away. Existing partitions were set up as AmigaDOS areas. So expect to repartition your existing hard drive system to get it to work with the ATonce.

It's possible to set MS-DOS to boot from the hard drive, rather than inserting a floppy each time.

One point to bear in mind is that Vortex have an excellent back-up and upgrade service. The hardware board can sit in your Amiga forever, but by sending an SAE to Germany with international postage vouchers you can get the latest software updates.

In conclusion

The manual for the ATonce is well illustrated, and people should have little problem in fitting the board. It's sketchier on actually using the board – people who have a working knowledge of both the Amiga and the PC will have few problems, but if you're a bit vague in either area then you will flounder at first.

For instance, if you're not too sure about installing a MicroSoft mouse to work with a PC, expect a few problems getting the Amiga mouse to work with PC software. It can be done but it takes a knowledge of PC mouse drivers.

The ATonce is a good emulator. If you have a well expanded A500 then it brings that power out in PC mode. Not just a bog standard XT, but a lively AT model at that.

Is the ATonce better than the KCS Bitcon board? It depends, if you need a standard PC and don't have much in the way of Amiga extras, like memory or a hard drive, then the Bitcon is a better, all-in-one buy.

If you are prepared to fit an internal board and have lots of expansions then the ATonce is a much better buy. It's really for more serious PC applications that need speed and lots of memory – areas that the KCS board doesn't cope with very well.

DIFFERENT MODELS

The on-disk documentation contains a few fixes that can speed up the ATonce. The differences in various models of the Amiga stem from the revision number, which is always clearly printed on the board.

Revision five boards are the mainstream type. There is a slightly different driver on the ATonce disk which should be used with this type to give a better performance.

The revision six boards are becoming more common now, and the ATonce is really set up to make the best use of them. There's even a small technical note about soldering a resistor to make them work a bit faster with the ATonce, again contained in the ondisk notes.

How do you tell which board you have without dismantling the computer? You can't, but then again you have to take the machine apart to fit the board anyway.

VERDICT

PURPOSE
IBM AT PC Emulator board for the A500 (A2000/A1500 adaptor cards available).

SPEED: ●●●●●
Very fast once it's been set up correctly.

DOCUMENTATION: ●●●●
The printed manual is quite reasonable, and the on-disk notes are comprehensive, if a bit technical.

ACCESSIBILITY: ●●●
Easy to get up and running, but needs some tinkering to get the best out of it.

VALUE: ●●●●
A very cheap AT computer indeed! Requires a well expanded Amiga to get the best out of it though.

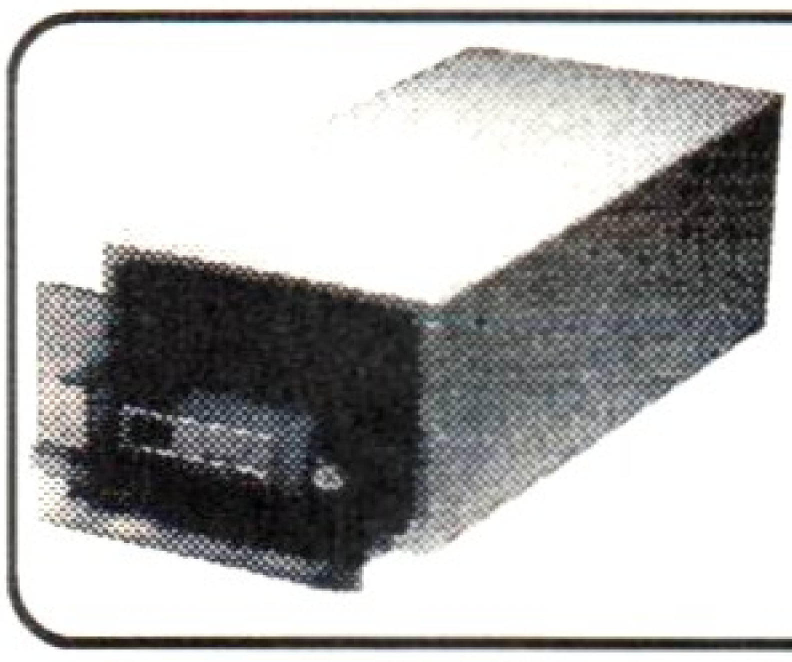
FEATURES: ●●●●●
Lets you use a hard disk for PC work, an Amiga mouse as a MicroSoft mouse and has quite a reasonable selection of graphics modes.

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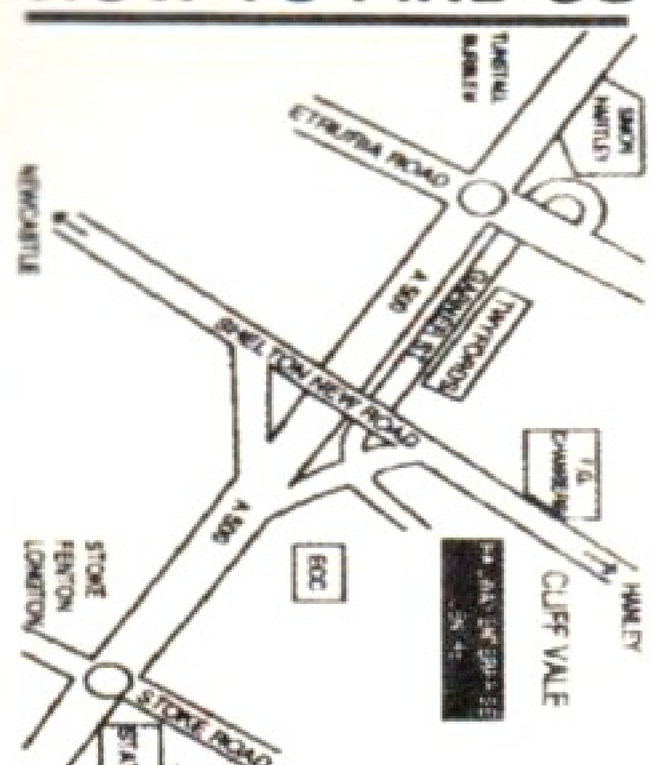
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With *TheEmulator* you simply have a Beeb on a floppy, end of story. If you want to have access to the best range of educational software on any computer, this could be the simple answer: and it's a darn sight cheaper than buying even a second-hand Beeb. Some simple educational software is provided as an example, but you will need to check that particular programs will run on *TheEmulator* before buying Beeb software.

There are many good reasons to own a BBC emulator, but most of them are to do with BBC educational software. **MARK SMIDDY** looks at the updated...

TheEmulator 2

BBC Micro Emulator ■ £39.95 ■ Genisoft 0753 680363

Though overpriced, the BBC had a friendly BASIC and excellent expansion capabilities and it has a stronghold in schools even today, almost ten years on. In a bid to compete for the educational market, Commodore set Ariadne Software the task of creating a BBC emulator. The result, despite being incredibly fast and simulating the BBC environment well, met with suspicion in some quarters and seemed to fade from view. Until now, that is!

The major change in the new release is *TheEmulator* can now read ADFS disks written on any of the BBC machines including the Archimedes. However, Archie disks must be formatted to 640K, not the usual 800K. Sadly there is still no support for the much older DFS or the 8271 DFS.

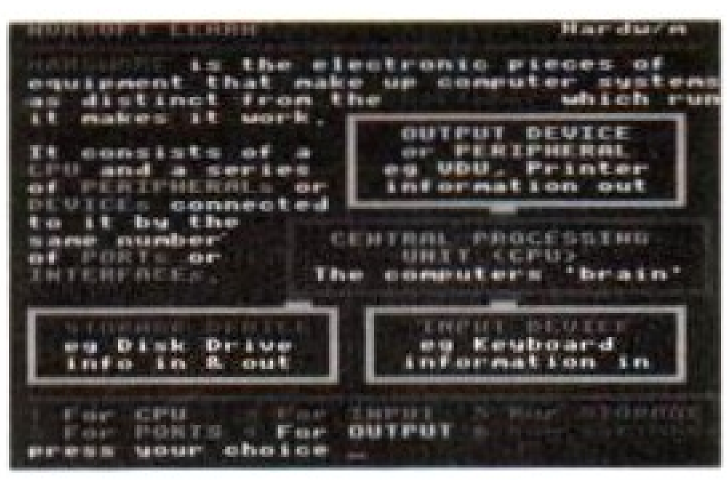
The ADFS support comes in two flavours: an ADFS XModule and TFS – the ADFS-to-AmigaDOS transfer system. Both these only work on the internal drive.

XModules (expansion modules) are bolt-on goodies similar to sideways ROMS in the original. In this way, anyone with programming skills in 6800 assembler or C can add extra filing systems – or whatever they please – using *TheEmulator* as a driving engine. BBC BASIC has itself been re-coded as an XModule.

Operating System Support

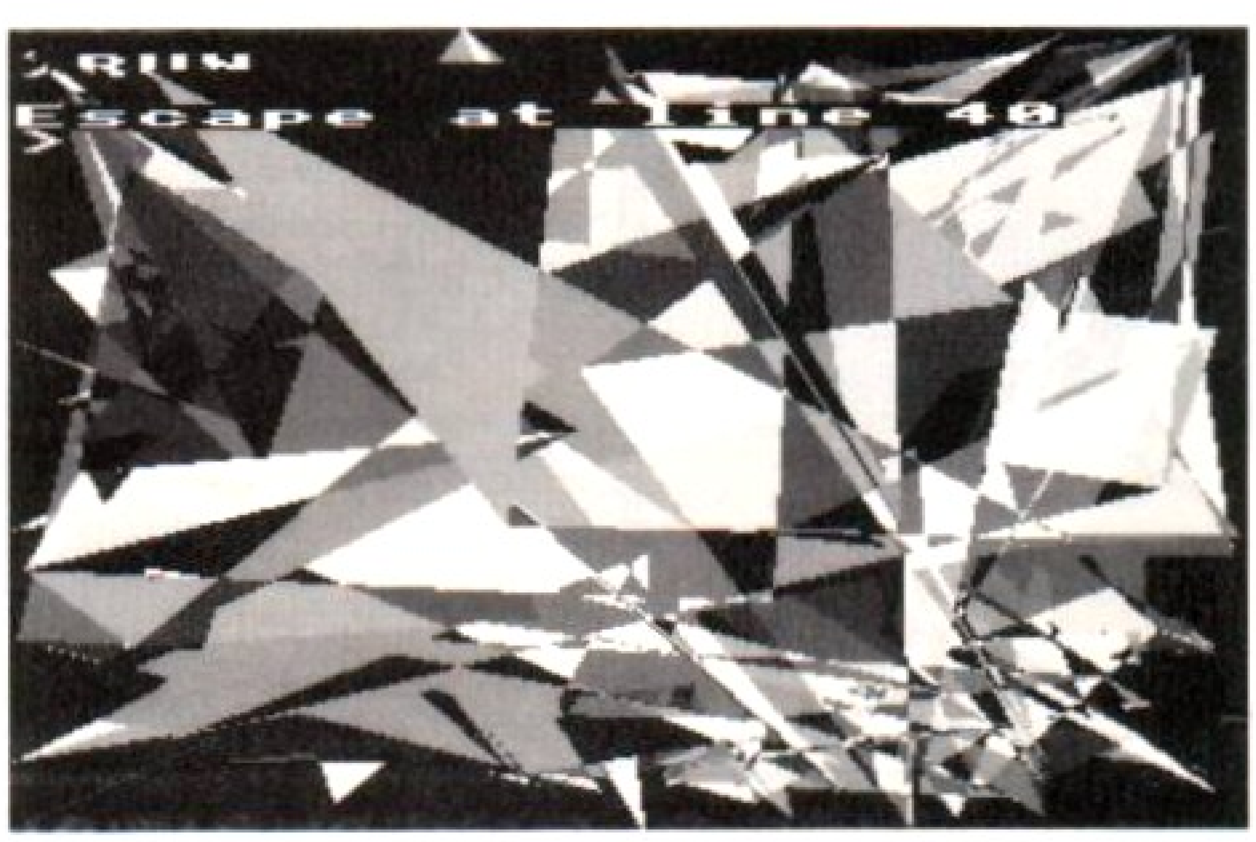
The following OS calls are all fully supported in the most recent version of *TheEmulator:* GSINT, GSREAD, OSBPUT, OSBGET, OSRDCH, OSASCI, OSNEWL, OSWRCH, OSWORD, OSCLI. On the DFS side of things the following calls have been implemented: OSFIND, OSGBPB, OSARGS, OSFILE. Finally, most of the documented OSBYTE commands have been implemented – far too many to mention.

The *LOAD command now allows BBC screens to be loaded directly from disk to memory. However, a small amount of re-coding will be required for most programs because this is implemented as if a 6502 second processor were present. In practise, this takes seconds. Two new commands allow programs to read and write AmigaDOS devices directly. *ASPOOL and *AEXEC work like the BBC BASIC equivalents but operated on Amiga devices such as PRT:, RAM: and so on. They even work on named pipes!



Sound and Graphics

There has been a considerable recode of the graphics routines to support all the GCOL modes which are needed for animation (see bottom picture caption). Similarly, the ubiquitous ENVELOPE sound command is now supported. This was responsible for generating the mysterious bells and whistle sounds the Beeb somehow managed to achieve with only a comparatively rudimentary sound chip. Its inclusion is a welcome addition and will help no end.



A welcome addition to *TheEmulator* is the recoding of the graphics routines to support GCOL modes 1, 2 and 3. These calls are vital to any program doing animation – GCOL 3, for instance, implements exclusive OR. As an offshoot of this, the recode has taken TheEmulator outside Kickstart's graphics.library making it slightly faster. The weird abstract art BELOW is actually a demo of the idea...

TheEmulator is still the cheapest way to buy a working version of the computer that has influenced the lives of thousand of children across Britain - and created careers for people like yours truly.

The real thing, bought second hand, will probably cost £150 and then you'll have to buy disk drives and all the other paraphernalia. *TheEmulator* is not perfect, but with every upgrade it gets better and is a worthy addition to any family. What would I like to see in the next version? Support for the Concept Keyboard and other BBC specific peripherals. We'll see if anyone listens...

• Genisoft can provide teachers and educational programmers with special licenced re-distributable versions of *TheEmulator*. They should be contacted directly for more information.

VERDICT

PURPOSE
To run BBC software on the Amiga.

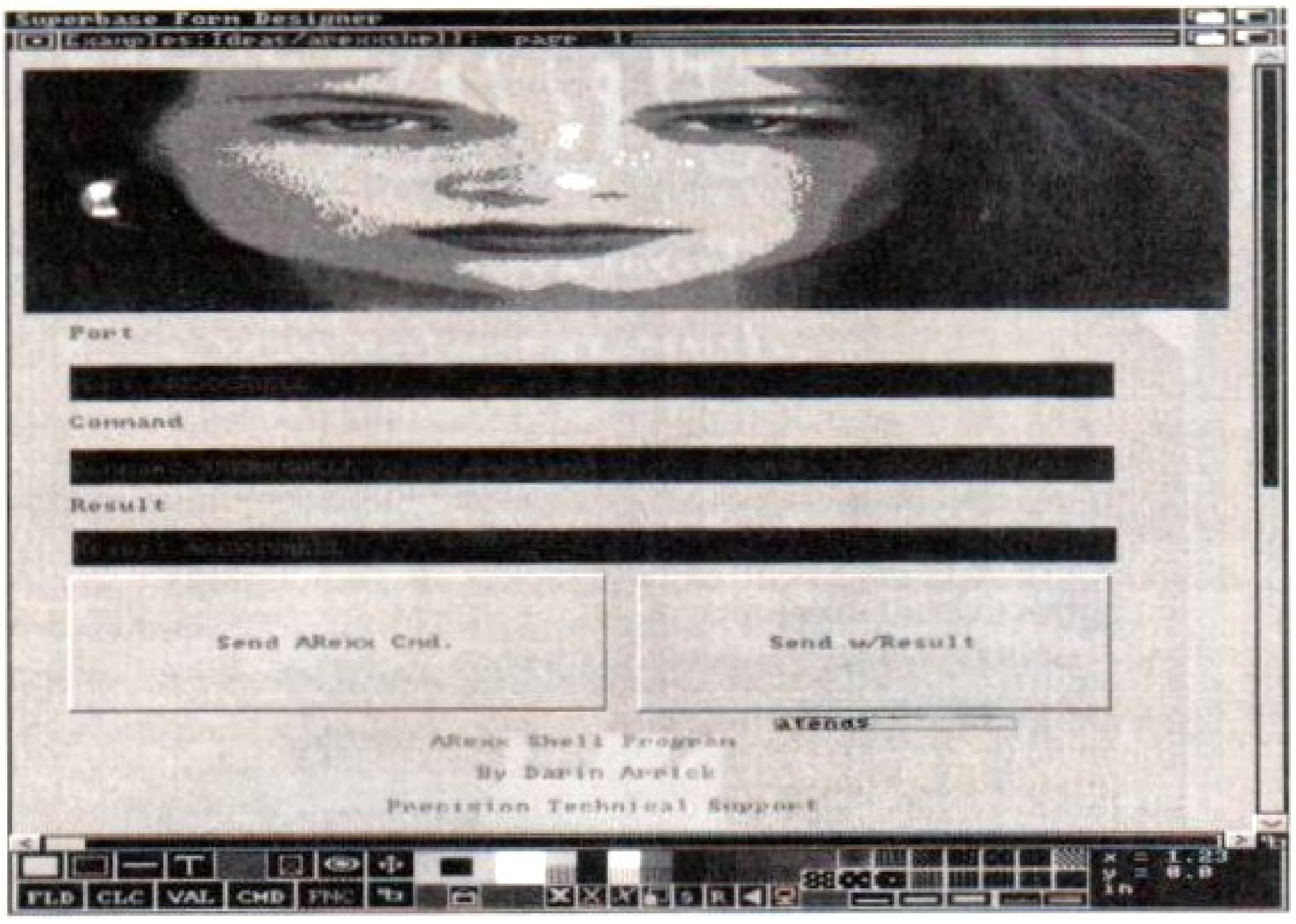
SPEED: ●●●●●
Between two and seven times faster than the BBC - most emulators are slow.

DOCUMENTATION: ●●●●
Good for programmers and BBC users. Beginners will need BBC Basic manuals.

ACCESSIBILITY: ●●●●
Does what it says, and does it well. Excellent if you want a cheap BBC.

VALUE: ●●●●●
Good, given the wealth of BBC Micro based educational software.

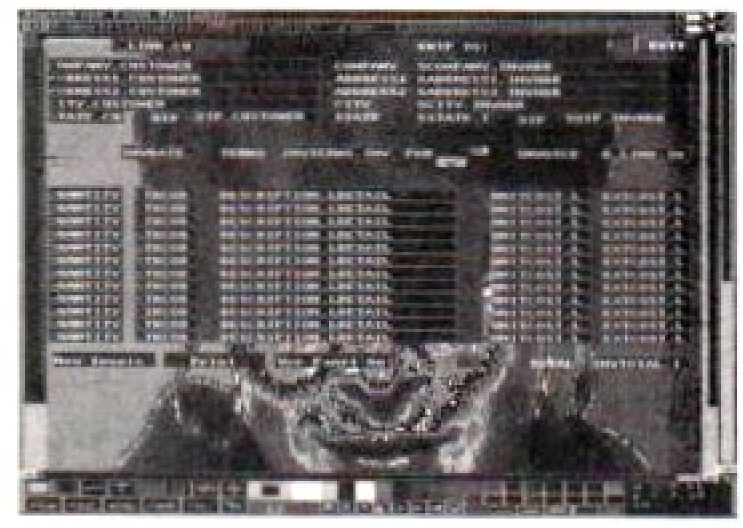
FEATURES: ●●●●
Excellent, but limited by Amiga hardware.



Here's a simple form – it's for setting up and using Arexx macros (yes, *Superbase* supports Arexx). The picture has been scaled to the size of the box and then rendered in grey.



'Page View' is really excellent for the entry of data, where you want just a simple view of information.



This form is much more complicated. Notice how you can have pictures as a background to a form, for pretty databases.

If there's one database that has really made a name for itself, it's Superbase. Can the latest version steal the scene totally? **PAT MCDONALD** finds out.

Superbase Professional 4

Programmable Database ■ £349 + VAT ■ Precision 081 330 7166

A database can be a very useful piece of software. The ability to handle records, statistics and bookkeeping on a computer, rather than with lots of different pieces of paper, is so handy. Plus it's more difficult to lose a computer than a piece of paper!

Usually you have a good idea what you want at first – maybe a name-and-address file for mail shots, or perhaps a catalogue for a collection of some sort. Set it up, type in all the data (how tedious that is) and you're there.

What if you want to import a database file from an IBM PC at work, though? How about adding a digitised photograph which displays on the screen alongside the text? What if you need an extra field for each record? Or maybe you suddenly find that you've forgotten to include the bar code for each product in a stock control list. What do you do?

Most Amiga databases up until now have been very bad at doing anything apart from inputting data, storing it and doing a search through it. *Superbase 3* was the only contender in the serious database stakes – and now it's been updated to *Superbase 4* we have every right to expect fireworks...

Manual overkill

It's a big package – the box can be used as a reasonable monitor stand! Inside is a fat ring-bound manual for the database, then another manual for the form designer and the DML programming language, and in the back of this one is another manual which gives ideas of uses and applications for *Superbase*. On top of that you get two disks, one with the database and the form designer programs on it, the other with lots of examples.

The protection system for *Superbase* is very easy. On each program disk is a serial number – you have to type this in when setting up the program, along with your name and company (or city where you live). This information is needed to decode the program, and it's displayed every time you run the program. A far more professional system than the previous dongle attempts.

I'll admit I tried plunging straight into *Superbase*, but it didn't pay off. You get an impression of lots of power and it looks very easy – but I found I needed to go back to the manuals to start off. Reading these is fairly easy, so long as you've got the time. They try to avoid jargon, and explain technical ideas clearly. You don't need to read them all – maybe about a quarter of the whole lot to get started and make your own databases – but if you're used to programmable databases then you'll probably find it easier.

> "The range of graphics that *Superbase* can include is again impressive. Not only your standard Amiga IFFs, but also HAM, Dynanic HAM (that's 4096 colours in high resolution), PCX or Compuserve GIF."

The main features are listed at the front. Each one then has a section of its own with lots of detail. The first manual ends with a good tutorial on how to set up your first database – so you can read the first section, skim the middle and start making databases after a few hours, using the examples that are on the disk.

Super potential

I could fill up two pages just by listing all the features of *Superbase*! If you have an existing database already laid out with *VisiCalc*, Microsoft *Excel*, *Lotus 1-2-3* or many other systems, you can import them into *Superbase* and use them on an Amiga. It can also import *dBase II* or *III* files, but

DATABASE MANAGEMENT LANGUAGE

If you're wondering what makes a database programmable, then read on. The DML built into Superbase is a lot like a version of Basic especially designed for working with databases.

If you want to set up a very intensive database (perhaps lots of cross calculations and filtering to produce a very complicated result) then you would use DML, rather than the very impressive filter and query options built into the standard 'mouse and graphics' method of using the program.

In the library book example, if you wanted a list of all books by a single author, then that would be very easy to set up with the query option. What about something more complicated, though? How about all the books written by a single author during a certain time period, below a certain price and released by the same publisher. You could set this up with a query, but it would probably take you a few attempts. DML would be harder to set up (it's a programming language after all) but once you had the program you could save it.

That's a small use. DML offers a lot more than that. It can be used to run a local area network of computers, using the same system. If this was a Novell network of PCs and Amigas, then you could store the main database on one hard disk and use the other machines to access it and use it.

you cannot actually edit them from *Superbase*. You could set up a new database based on these systems and view the old data, though. *Superbase* has a competent comms menu, to read data through the RS232 port from another machine.

For the record

A brief explanation of a database is in order. A database is a large, organised volume of information – a bit like a book. Each page of the book is called a 'record'. Each record looks much the same – except that it contains different information on the whole overall subject.

For instance, a library catalogue database would contain a record on each book in the library. On each record would be the name of the book, the author, the price and the ISBN code. Each record would have exactly the same areas for this information (they're called 'fields'), but because each book is different, the information would vary from record to record. *Superbase* could handle 1000,000,000 million such records – though I'm not sure Commodore have made an Amiga that could cope.

Once you have the database on a disk, *Superbase* can get to work on it and add a unique touch of the Amiga. For instance, you can put pictures onto a record (the front cover of the book digitised, perhaps) as well as sound samples – RAW binary or IFF, of course. The range of graphics that Superbase can include is again impressive: standard Amiga IFFs, HAM, Dynanic HAM (that's 4096 colours in high resolution), PCX or Compuserve GIF. The last two are common on PCs.

If you want the graphics to appear on a database, you might need to rescale them, change the aspect ratio or turn them into a greyscale – no problem. Alternatively they could display on their own screen when a field is clicked, in their original colours and resolution.

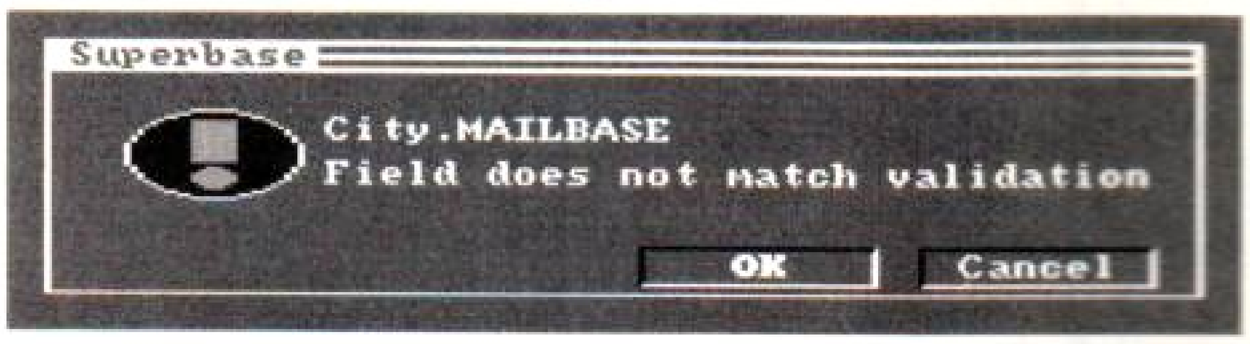
Standard form

Superbase works on many different levels. At the top you've got database design – working out the layout of each record, where fields go and what they contain. Fields can be text, numeric, calculated and indexed – indexing helps a lot when getting *Superbase* to produce a report. You can also set the password level to either permit full editing, just add new records or only examine the data.

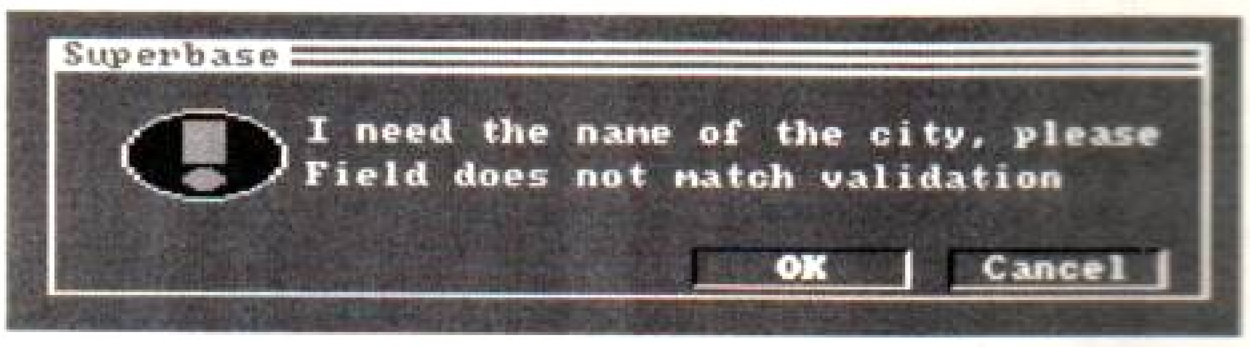
Below that is the form designer. This is a separate program on the same disk (*Superbase* goes onto a hard drive very easily and Precision strongly recommend that you have one). Running this brings up something like an art program.

A form is a custom-designed screen for looking at a database file. You can design many different forms for using the same database, and you can alter each one to taste. For instance, consider a database that contained all the financial dealings of a firm. An office temp typing in invoices wouldn't have the same editing facilities that an office manager would have, so you would leave some fields off the form that the typist used to enter data.

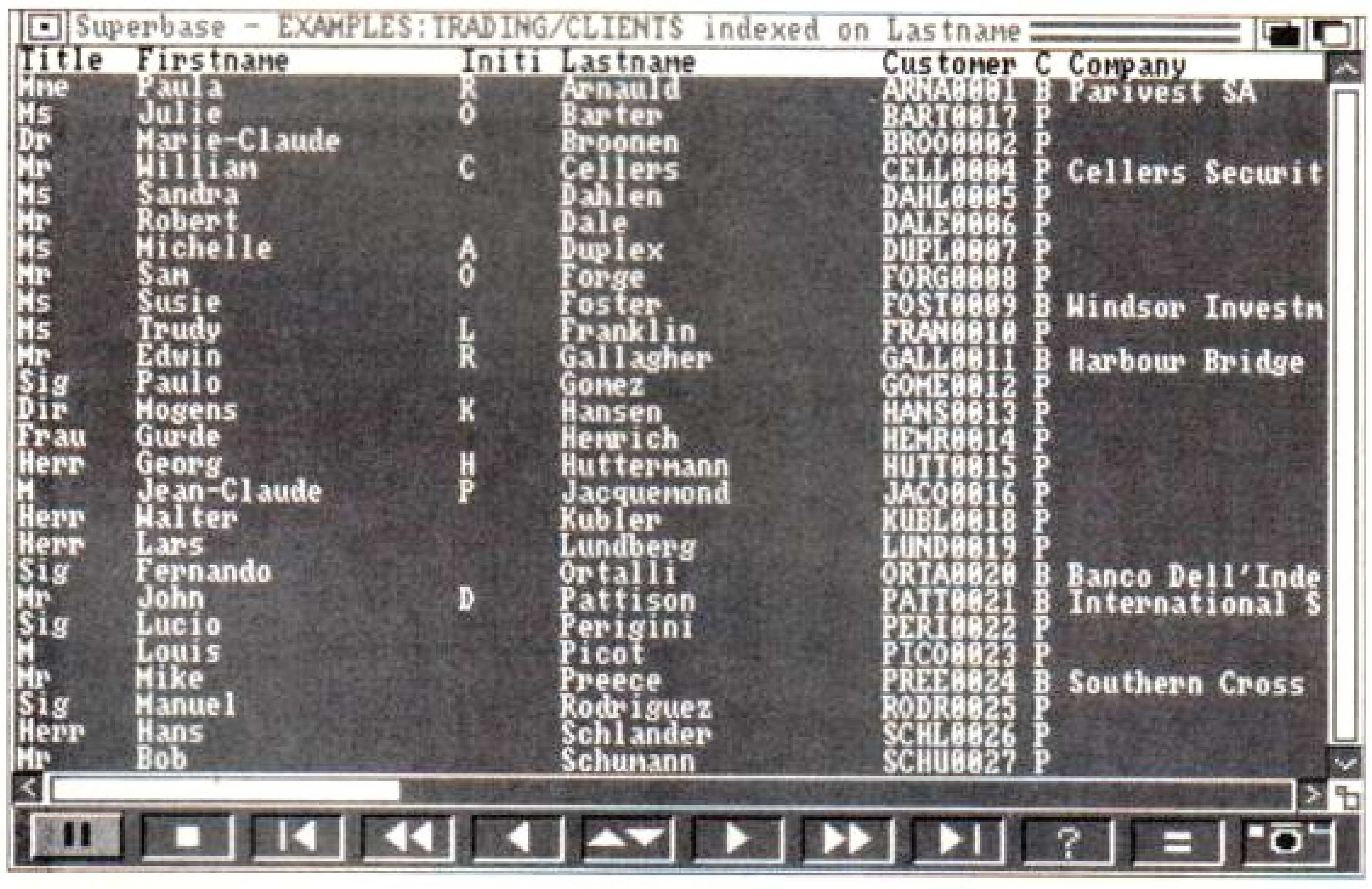
Superbase has one feature that makes looking around a database very easy. It's a set of icons at the bottom of the screen that are similar to a video recorder. You can fast forward, pause, rewind, play forward and backwards through the records on a database or jump to the beginning or end. *Superbase* uses a mouse and graphics to the full and the keyboard is well integrated with the system too – pressing return selects OK from a requester box, and there are many other key shortcuts for when you get used to the system.



Shock horror! You made a mistake when entering data. The error message is a bit cryptic though...



OK, so you've made the same mistake again, but *Superbase* can have custom error messages for this. Now you can understand where it was you went wrong.



When you are setting up a database, 'Edit View' is just the job. You can easily edit fields to accept the exact information that is necessary.

Another Perfect Day

The Amiga has always been short-changed as a computer for business, mainly because writers of PC software would not convert it. This is a very powerful program, with bags of flexibility and features, that redresses the balance. It also includes the features that make an Amiga so special.

PAYING LESS

***Superbase Pro 4* costs a lot of money – £349 + Very Awful Tax. If you already have any version of *Superbase* though, then you can take advantage of Precision's very reasonable upgrade prices. For instance sending the original *Superbase Personal* disks back would get you *Superbase Pro 4* for the bargain price of £150 + VAT.**

Trading in *Superbase Personal 2* gets you the program for £125 + VAT, and if you have an old copy of *Superbase Pro* then an upgrade is only £75 + VAT. Considering the older versions have been out for a few years now, the prices are pretty good compared to some on other computer systems.

EXTREME FLEXIBILITY

***Superbase* can handle multi-file databases. In the library example I've given, each book has an author, which is entered onto the record. Some authors, naturally, write more than one book though – which means the same piece of data is replicated in a database.**

To avoid wasting disk space, you could have lots of files. One just contains all the authors, the other contains all the titles of books. By using the link option, you could create a database which looked exactly the same, but was much smaller on a disk – often books have the same name as each other, so again that would save space and be more efficient.

A common use in business would be cross reporting from such files. You could compare profits made in each month (directly from where they were calculated from received invoices and cheques) to the amount of advertising money spent (again, directly from the financial transaction).

This flexibility and the awesome power of *Superbase*, together with the graphics and sound plus the DML programming language, mean that suitably powerful Amigas could then be networked together to do many of the jobs that are needed in business, and all done with just one piece of software...

VERDICT

PURPOSE:
Programmable database with a graphical user interface – all Amigas.

SPEED: ●●●●
It really needs a hard disk for very large databases.

DOCUMENTATION: ●●●●●
Very extensive and easy to read – shows you 'what not to do' as well.

ACCESSIBILITY: ●●●●
Brilliant, but there's a lot to understand.

VALUE: ●●●●
If you're upgrading it's pretty good (this is business software, after all).

FEATURES: ●●●●●
Makes other databases look rather ancient and underpowered.

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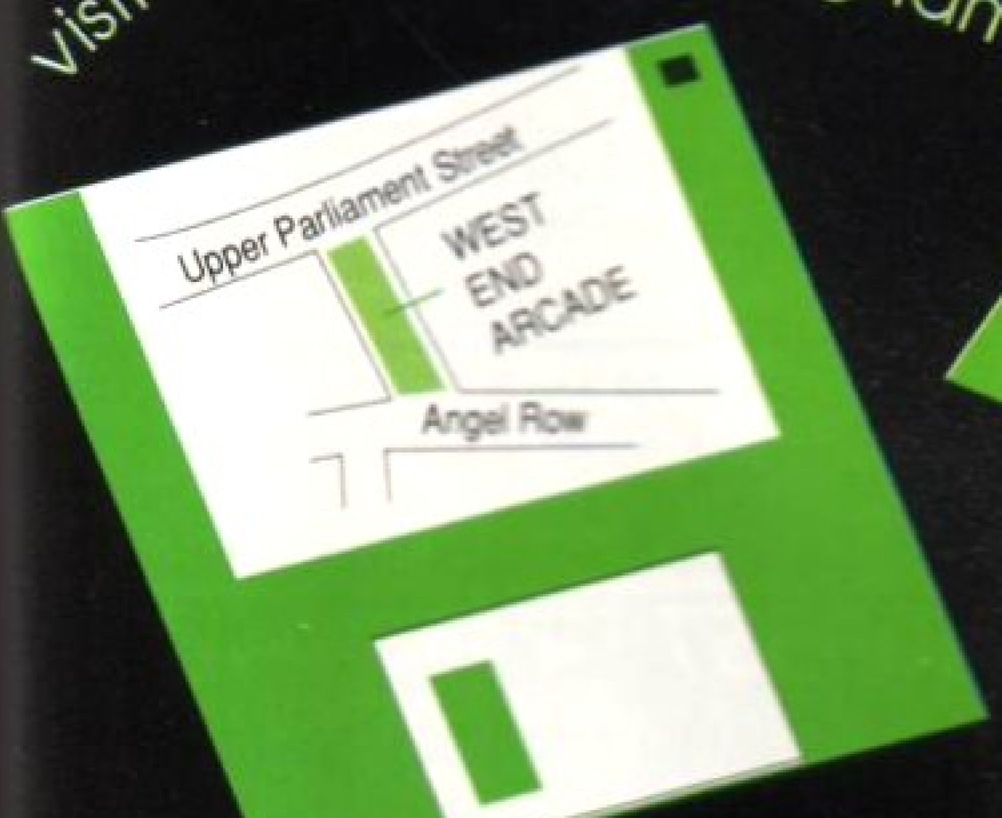
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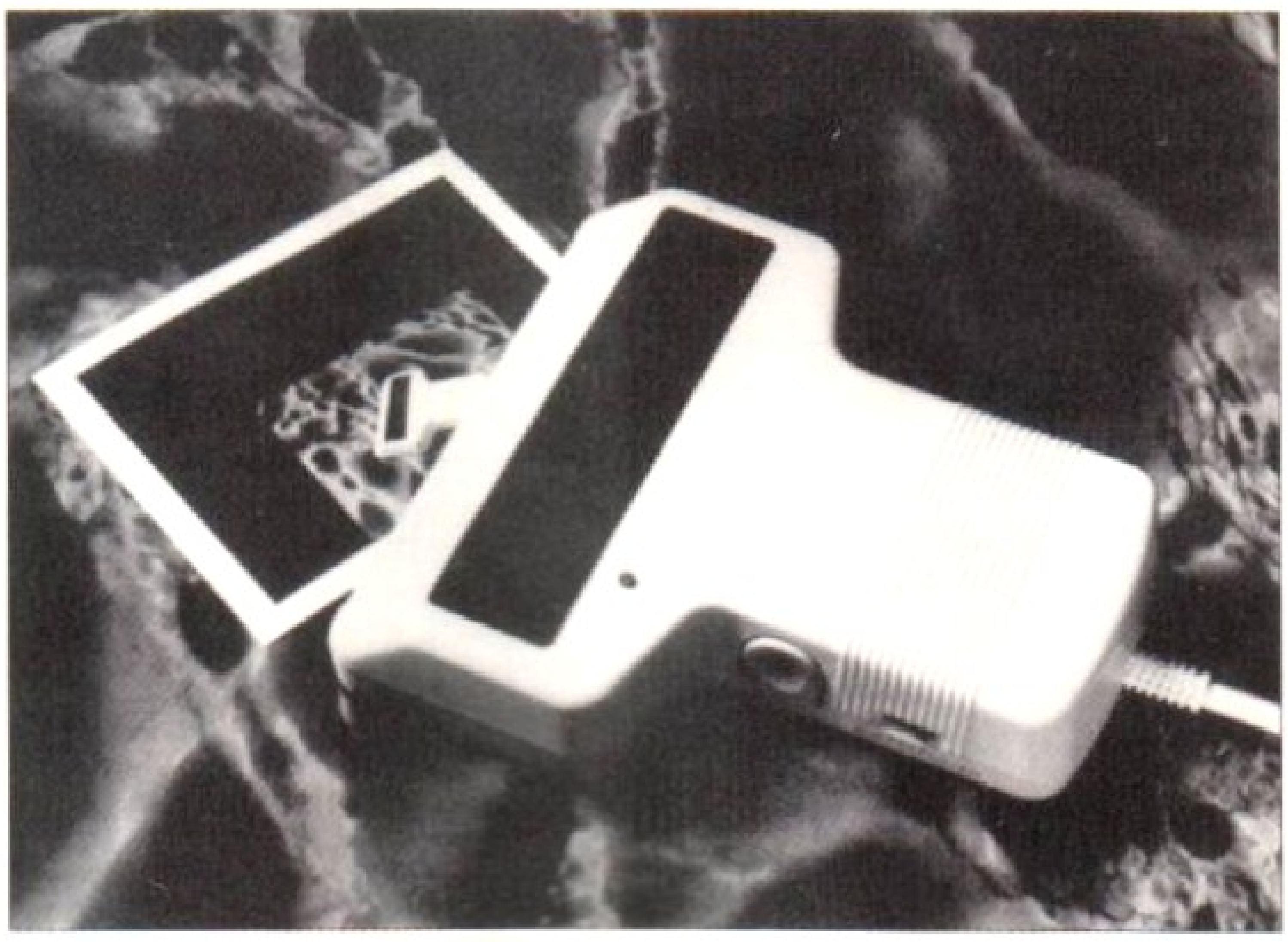


Design: ©1991 , AlphaGraphics, Nottingham. Tel. (0602) 418877

In common with many companies in the scanner market, PanDAAL don't actually make the hardware: they only write the application that takes the data from the scanner and compiles it in a form the Amiga can handle. The scanner is made by an 'Original Equipment Manufacturer' who then rebadges the scanner for the end customer.

This can result in a number of companies selling the same mediocre scanner, but in this case PanDAAL have gone to one of the best manufacturers of hand scanners in the market, Marstek. Marstek's parent company GUTS make the insides (GUTS, it's a sort of joke) of lots of people's scanners and mice. In this case PanDAAL obviously don't mind as their name is nowhere to be found on the scanner: instead there's a big Marstek label underneath the unit.

The hardware is made by Marstek, a company well known for quality. A good choice.



Hand-held scanners are the ideal way of getting quality photographs into your DTP pages. **PAUL LYONS** tests the newest entrant in a competitive market...

PanDAAL Daatascan

Hand-held scanner ■ £189.95 ■ PanDAAL 0234 855666

The quality of the hardware is decidedly a cut above the scanners reviewed last month. Although there are no major differences between the scanners, the little details all add up to give a better, quality product that's comfortable to use and produces very good quality results.

One little point, for example: the inclusion of a second set of rollers at the back of the scanner. It may seem insignificant, but on smooth photographic paper it makes a vast difference to your ability to scan in perfectly straight lines. PanDAAL are also including a metal ruler in the package, to run your scanner along and keep in a straight line.



This is what's known as a 'contone' scan: the continuous tones of a photograph turned into dots for printing. The quality is not at all bad on this difficult test.

Details, details!

The scanner has four controls on the body: the scanning button, which you hold in while scanning; the resolution setting, switchable to 100, 200, 300 or 400 dots per inch (dpi); the brightness control to alter the density of the scan; and the dither patterns. The DAATAscan also simulates more greyscales than previous scanners we've looked at: 64 in 400 or 300 dpi mode and 16 at 200 or 100 dpi.

Changing the dither patterns alters the way in which the scanner records the image: higher settings are used for finer quality images (say magazine photographs as opposed to newspaper photos).

If the delay in production of this scanner really was to rewrite the software then it was well worth the wait, as it's a fine little application. There are a few basic image editing tools (including a nice full-screen pixel editor), but the programmers have confined themselves to producing a fast, easy-to-use scanning interface.

To use the scanner, plug the scanner and power supply (which for once is of a decent quality) into the interface and the interface into the parallel port of your Amiga. Turn on the Amiga, put in the disk and the application autoboots. It will also run from a hard drive, but you don't appear to gain any speed advantage.

When the application opens you are faced with three windows: a blank image window; a settings window that contains all the relevant information about image size, resolution, et cetera; and a task strip containing eight icons such as Load... Save.. Scan... Zoom, Print and so on.

In practise

Scanning could barely be easier. Set the scanning sizes and resolution you want in the Settings window, check you have the same settings on the scanner and click the Scan icon. The screen will go black, a message telling you what resolution you're scanning in appears and the scanner powers up. Our only main complaint was that while scanning you have to move the scanner very slowly indeed.

Overall this is a fine scanner, with a slick, easy-to-use interface which allows even novice computer users to produce good quality scans. The extra quality is certainly worth £20 or so above more run-of-the-mill units.

VERDICT

PURPOSE:
scanning in line art or continuous tione photographs, especially for DTP use.

SPEED: ●●●●
Good: the software is tweaked for speed and it makes scanning easy.

DOCUMENTATION: ●●●
Not a vast manual, but the package is simple enough to get to grips with.

ACCESSIBILITY: ●●●●●
Shows none of the reluctance to work that some other scanners exhibit.

VALUE: ●●●●●
The competition is tough. This wins on ease, but it is slightly more expensive.

FEATURES: ●●●●
Very good at what it does – but lacks some of the options for file formats.

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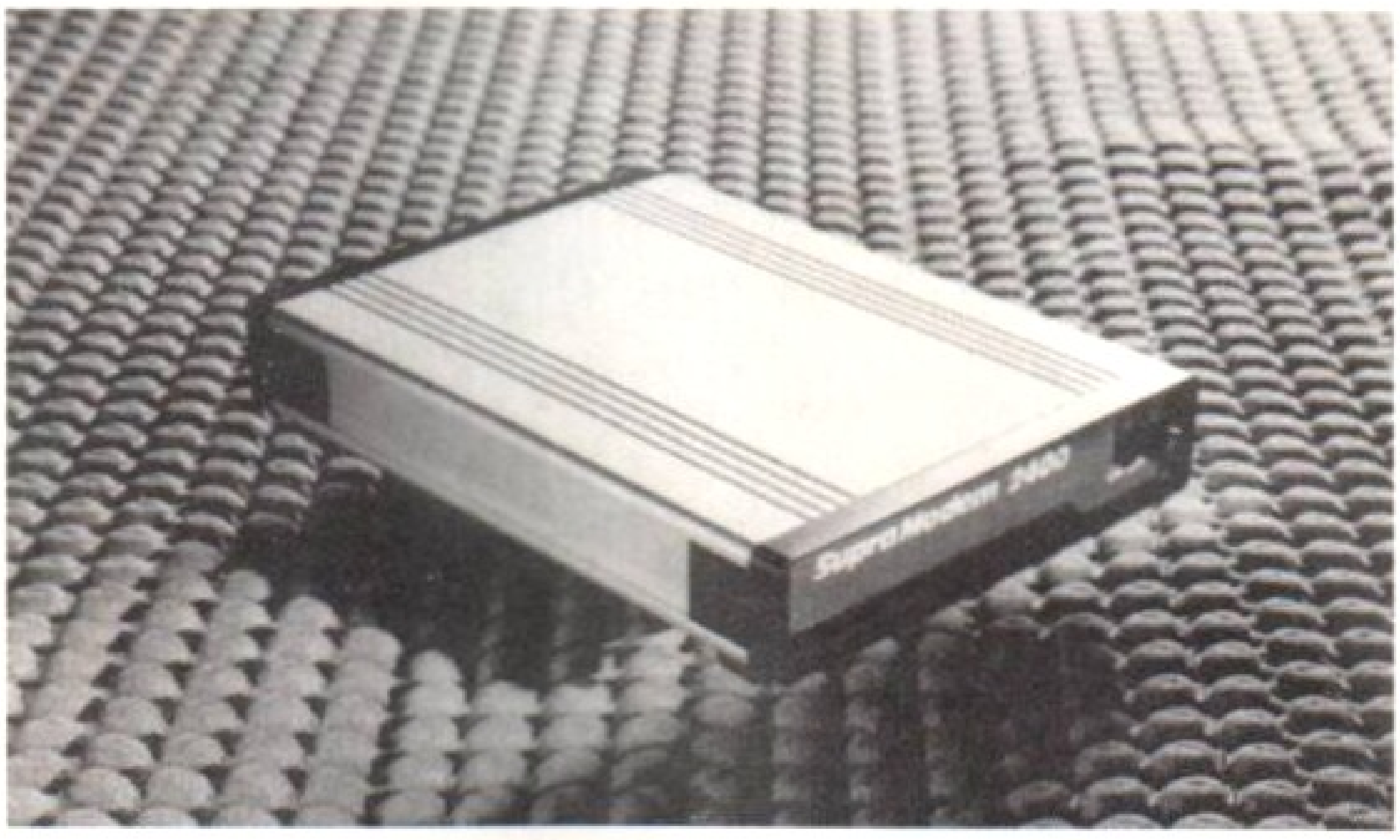
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Both SupraModems share the same compact, sturdy casing and both perform very well indeed on test. The model shown here is the plain 2400, but all it lacks is the extra security of the MNP control standard.

SupraModem 2400 and 2400MNP

Modems £149.99/£179.99 Surface UK 081 566 6677

When you open a box with a brand-new modem in it, you pretty much know what to expect, don't you? The modem will be about as big as a hardback book, with long rows of incomprehensible lights on the front, and it will be complicated both to set up and to use.

It will take you hours to get it rigged to your Amiga and, when you finally get it working, it'll be incompatible with your comms software and it'll keep getting stuck, wasting hours of time and pounds of phone bill.

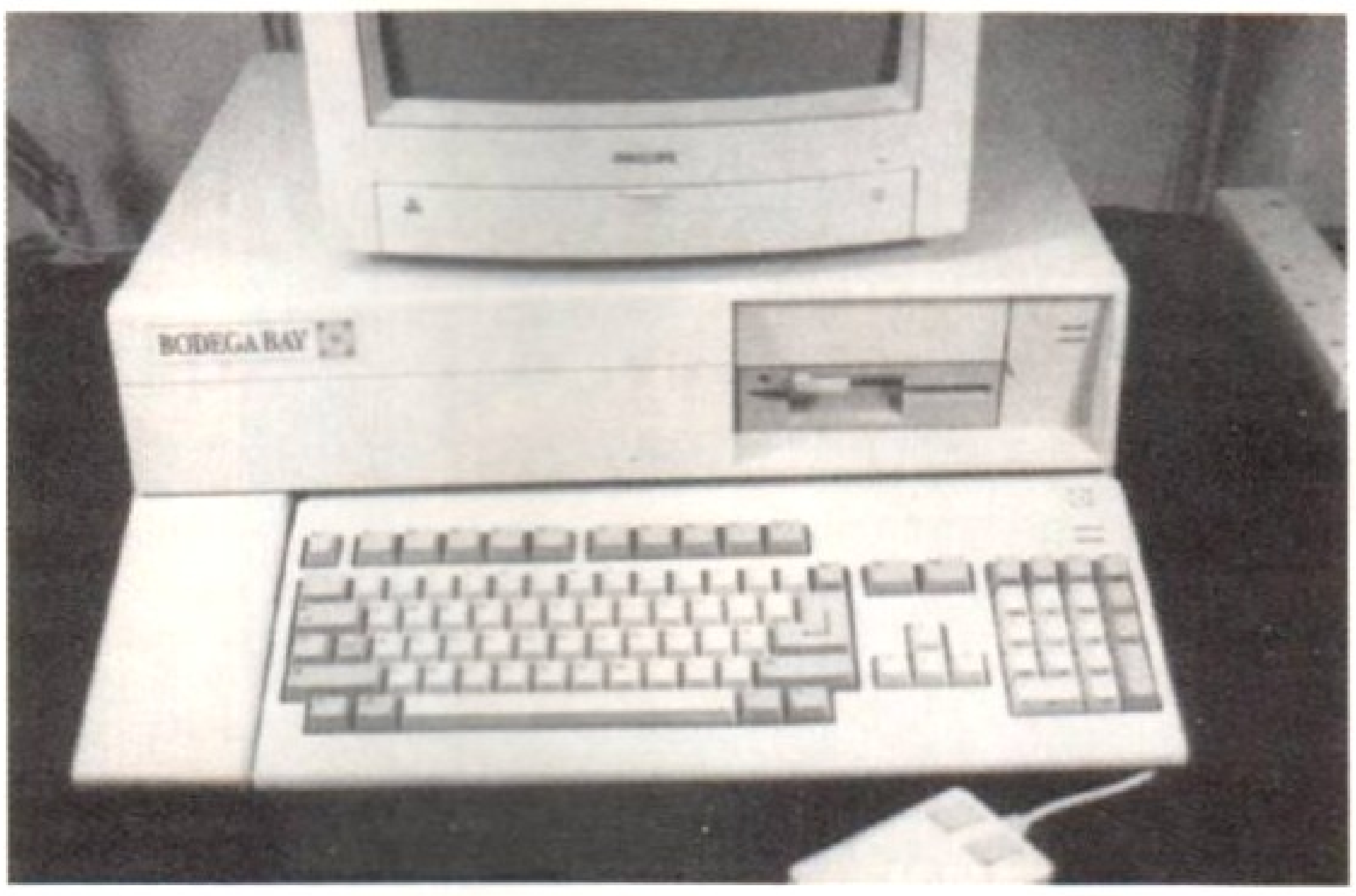
Opening the box containing a SupraModem is an entirely different experience. The unit is small and sturdy, and the lights on the front form letters which describe what the light is supposed to mean. HS means high speed, MNP means that the MNP Level 5 error correction is activated, and CD means carrier detect.

Using this device is just a 'plug in and go' operation. Although most 2400 baud modems are intelligent to the point of ignorance, remembering stuff you'd rather they forgot by storing it all in non-volatile RAM, this modem is smart. It never screws up, it accepts all the standard Hayes AT commands and so runs with all the software you throw at it, and it's small enough to fit under an external floppy disk drive, saving space on your desk. The model with MNP error correction is a dream, banishing line noise as soon as you use it. Most serious Bulletin Boards use MNP so once you have a modem that uses it too, you can put all worry from your mind: you'll never see line noise garbage appearing in your data again.

Not only does the MNP avoid clashes with up- and down-loading protocols – a major problem with some cheesy old modems I've owned – but it also seems to be a lot cleverer generally, not getting itself hung up for days waiting for data to be sent again.

It really does fly along at 2400 baud, even with MNP - so much so, in fact, that it's hard to read the incoming data that's flashing across your screen. I love this modem to death. It's small, hard and efficient and it does the job you bought it for with an almost palpable glee.

Phil South



As far as looks go, the Bodega Bay is very much down to personal taste: but when it comes to function, there's nothing around that allows you this degree of upward expansion while retaining the original casing of your A500.

Bodega Bay

A500 expansion case ■ £350

Amiga Centre Scotland 031 557 4242

The Bodega Bay is described as 'a modular expansion console' for the Amiga 500 – which, roughly translated, means it's a box that gives A500 owners an opportunity to upgrade their machine to reach a similar specification to the Amiga 1500 and 2000.

Bodega Bay contains a 200-watt power supply which takes over that job from the sometimes less-than-robust Commodore model. The power switch turns on the Bodega Bay and the A500, and an optional cable can power the monitor too. This gives a single-switch power-up for the whole system

The manual is a well-written, simple walk-through of installation and use. It isn't patronising and the tone is evenly pitched for beginner and expert. The A500 slides sideways into the Bodega Bay connector and that's it. Add a couple of cables and you're in business.

We tried a collection of boards in Bodega Bay's four 100-pin Amiga expansion slots, three of which can have optional PC XT/AT 98-pin slots: so the choice of add-ons is large. There are also mounting bays for a couple of 5.25-inch drives and a hard drive, though you can fit 3.5 inch drives with optional adapter plates.

All of the cards we tried worked, with the exception of a PC Fax-Modem card which wouldn't work on some PCs either! Boards you can run include: XT bridgeboards; AT bridgeboards; hard disk controller (HC2+); the Harlequin framebuffer; AMAX 2+; serial cards; PC Games ports; RAM expansions. Any card that follows operating system guidelines should work, but it may be tricky with PC cards that take hardware short cuts.

In general, we found the Bodega Bay easy to use, the instructions are clear and concise and the procedure for installation and expansion were better than adequate. It takes acres of desk space but it does a good job – and that, after all, is what it's there for. Add a couple of extras and you match the Amiga 1500 for price.

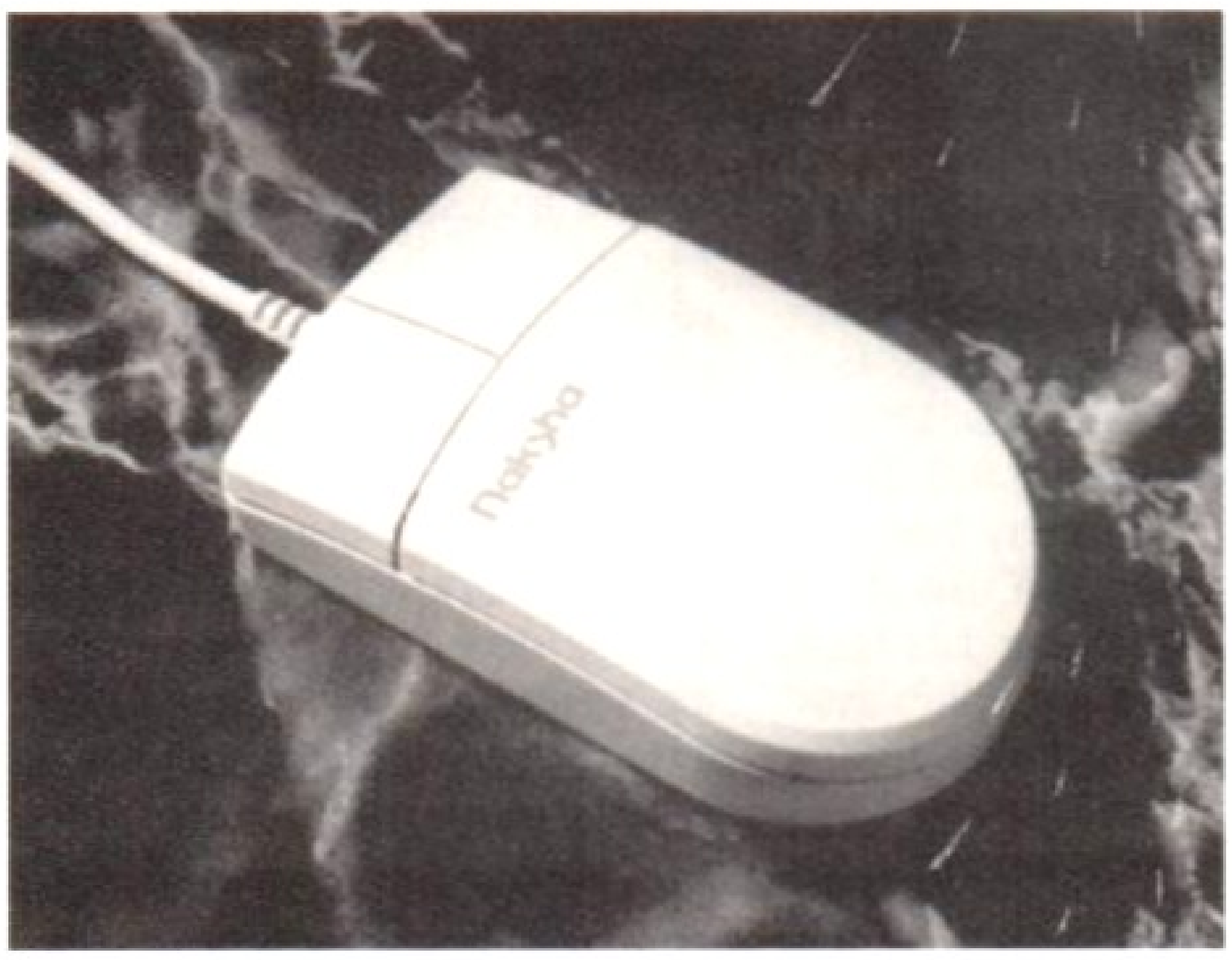
Keith Pomfret



DAATAmouse

£39.99 ■ Pandaal ■ 0234 855666

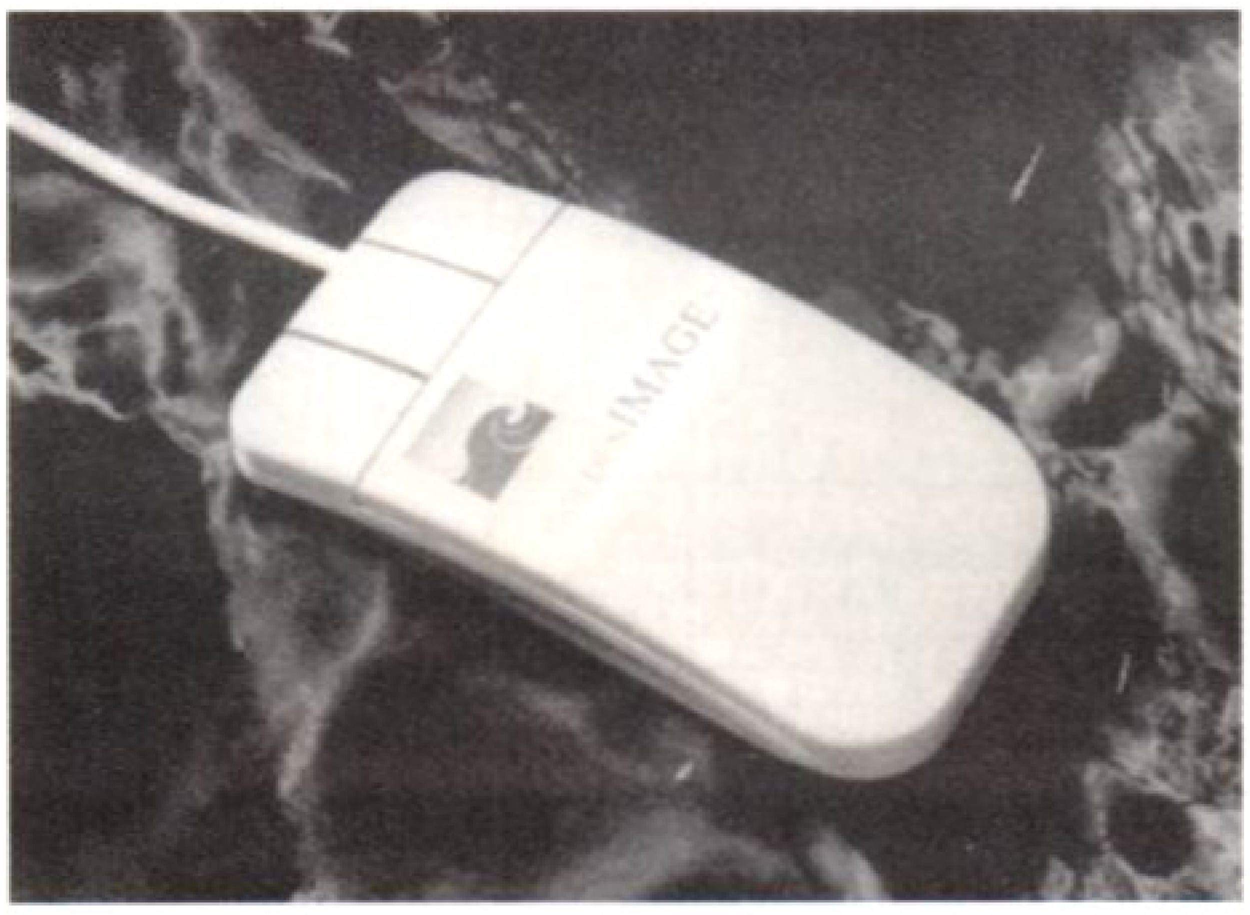
A good looker, styled more like some weird, futuristic racing car than your average mouse, it's neatly curved to sit under the palm of the hand, with two large buttons constituting nearly a third of the entire body. It also has the advantage of a 360 dpi resolution, which is easily the highest among the mechanical mice tested here. (The resolution, remember, is a way of testing how accurately you can move the pointer to a particular point on the screen and is measured in dots per inch or dpi.) The overall feel is light, and the buttons click with reasonable certainty. It is their position that lets the mouse down. When the hand follows the the curve, the fingertips protrude beyond the buttons. So if you're a 'fingertip clicker' the hand is forced into a less comfortable grip, arching over the mouse, rather than letting the palm lie flush as the look implies. Those with small hands should find this no problem, however.



Naksha Mouse

£29.99 ■ Naksha ■ 0925 56398

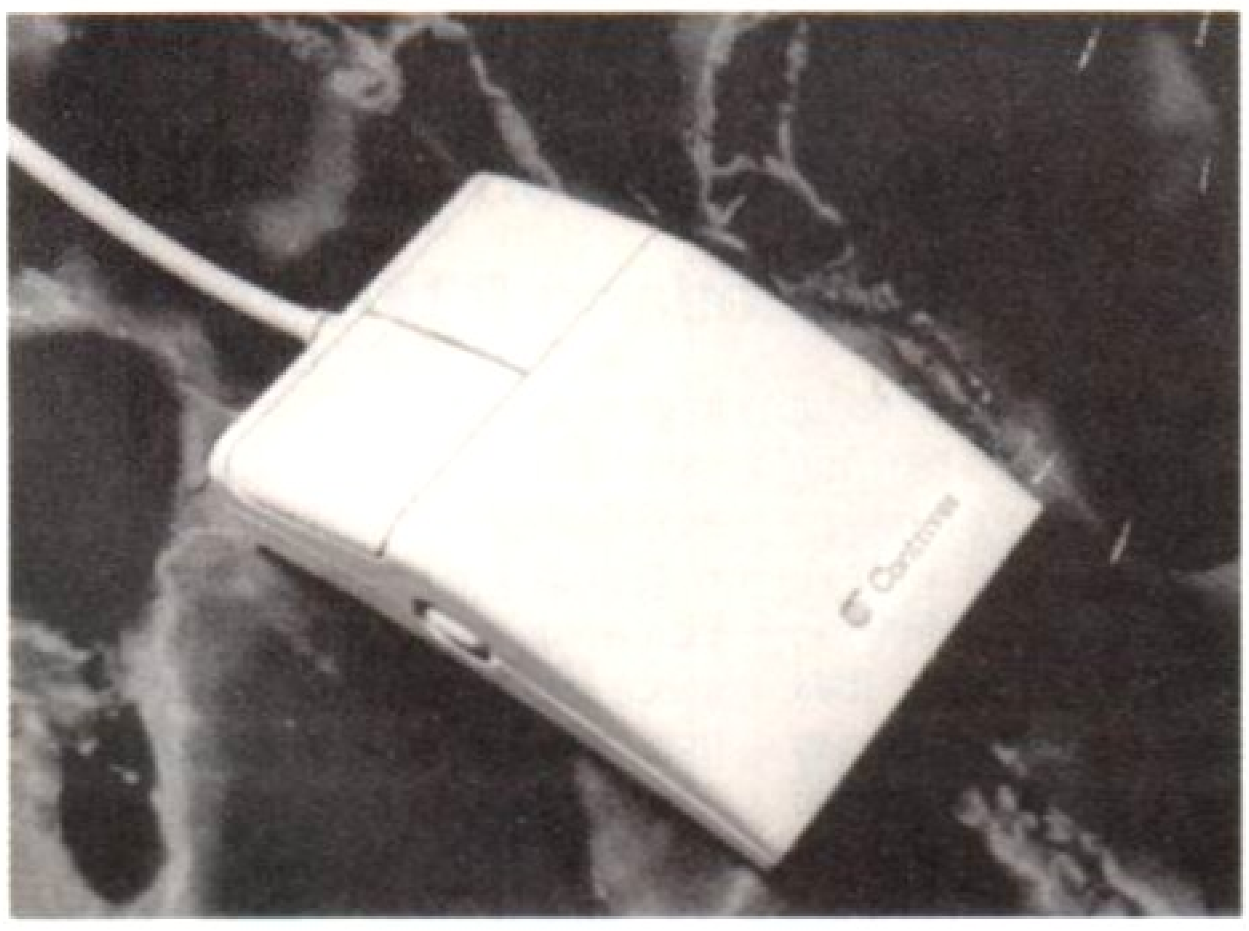
Not a pretty mouse, not a light mouse, but a solid, workmanlike affair. Looks are of little importance, however, when you are choosing an integral peripheral for your machine. Indeed, some would argue that in its purposeful, no-nonsense styling it achieves a greater degree of design balance than some of the more gimmicky-looking numbers. The weight is reassuring and helps fast, accurate, movements by lending a more tactile feel to an analogue device. The buttons click positively and are positioned well when used with the slightly arched grip that its long, low, shape encourages. Good resolution of 280 dpi gives accurate movement, too. Though less compact and aesthetically satisfying than Naksha's last model, it's a pleasure to use and if it is as robust as it feels should last an age. Add the current limited-period offer of US Gold's excellent *Operation Stealth* for free, and you're laughing.



Golden Image Optical Mouse

£39.99 ■ G I ■ 081 518 7373

The fact that an optical mouse has no moving parts and therefore needs little maintenance is quite intriguing and the Golden Image mouse works rather well. For those unfamiliar with the principal, an optical mouse replaces the moving ball with a light beam (the light from an LED) which reflects from shiny dots on the special mousemat and a photosensor picks up how many dots the mouse has travelled past to judge the rate of movement. The only problem is that without its own mat, the mouse tends to behave rather erratically. The third button is an bit of a PC hangover, and it tends to be hit by accident from time to time. The way that the case is designed, with an overhang at the back, means that it tends to tip up under the weight of the hand. Good if you have problems with dirt sticking in your ball, but not an ideal design for an Amiga mouse.



Contriver 5-in1 Mouse

£29.99 ■ Contriver ■ 0280 822803

Named for its compatibility with many a different make of computer, this mouse is a reasonably classy-looking affair with a low profile and finished in shiny, near-white plastic. It's designed for use with Amiga, Atari ST and three different kinds of PC and so the lead with the Amiga-compatible plug is on the end of a two-way adapter, which is a little untidy. Despite its convertibility, it has the Amiga-standard two buttons, so you won't be confused by a third, and because the buttons are set back slightly from the front of the case, you can rest your fingers easily over the front without danger of accidental presses. It's not ideal for the larger hand, because it tends to induce a degree of cramp in the fingers as your hand hangs off the back. Also, the sharp angles of the back corners do cut into your palm somewhat. And we wish we knew what the small button on the side was for. Neat ideas, but not the perfect ergonomic design.

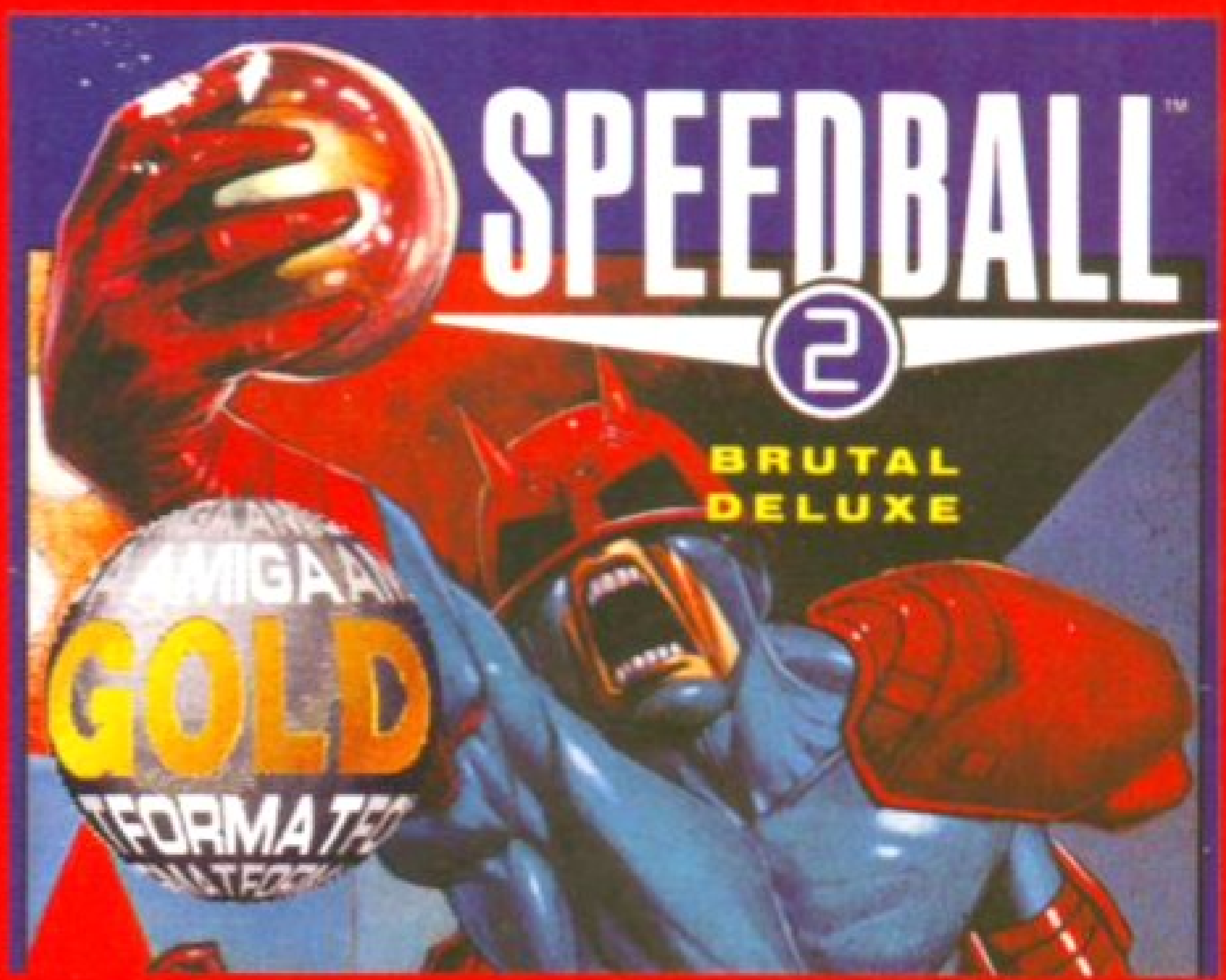
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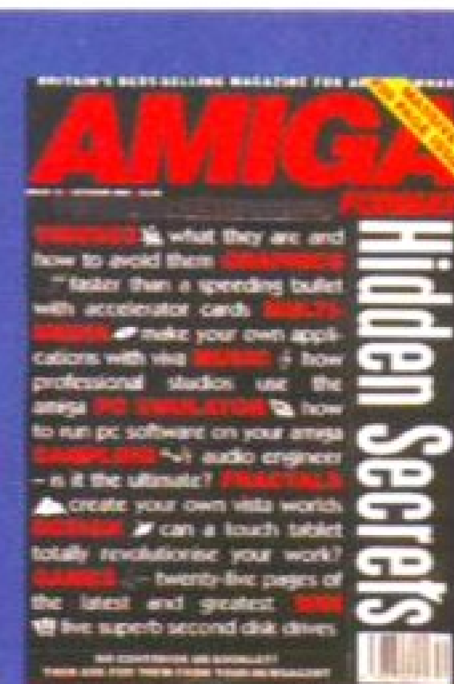
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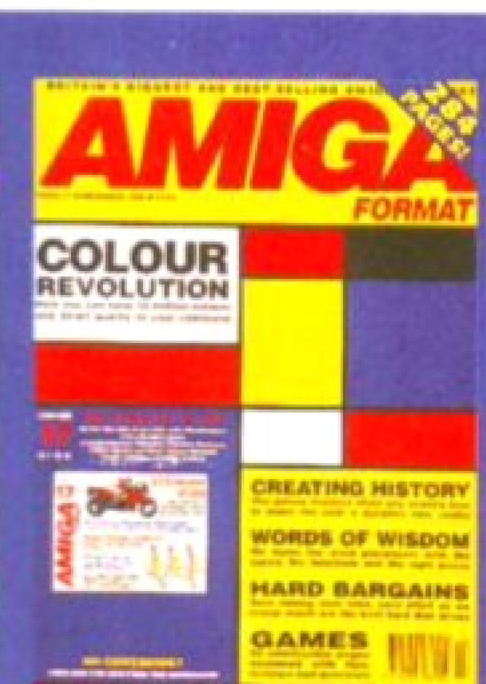
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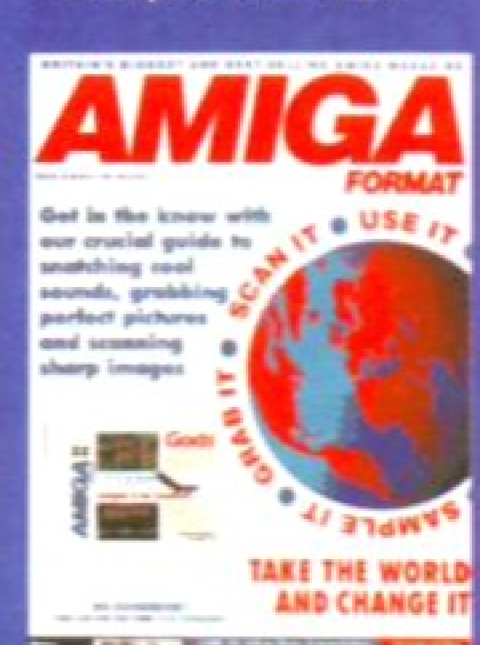
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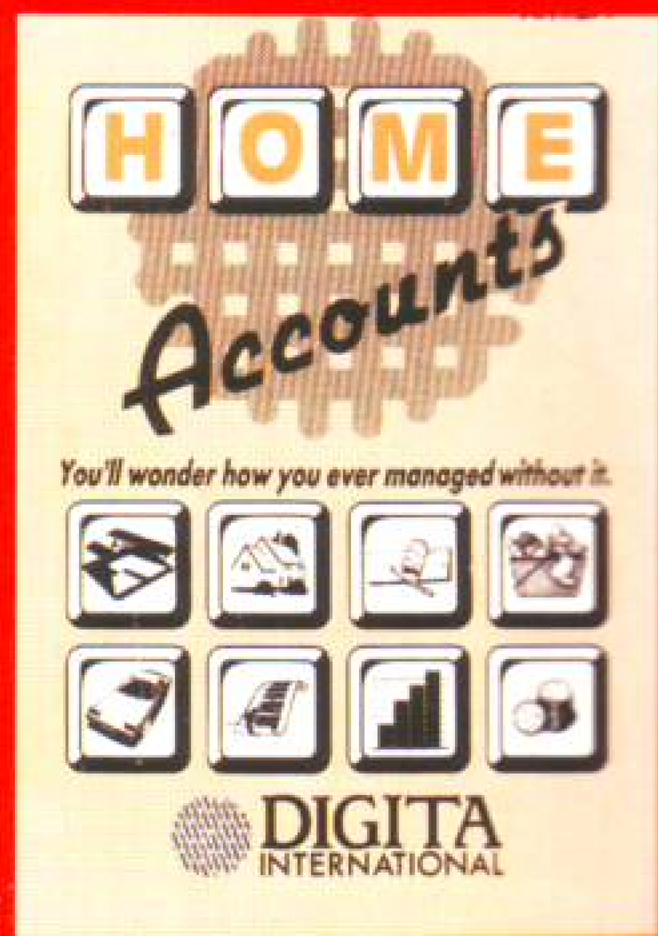
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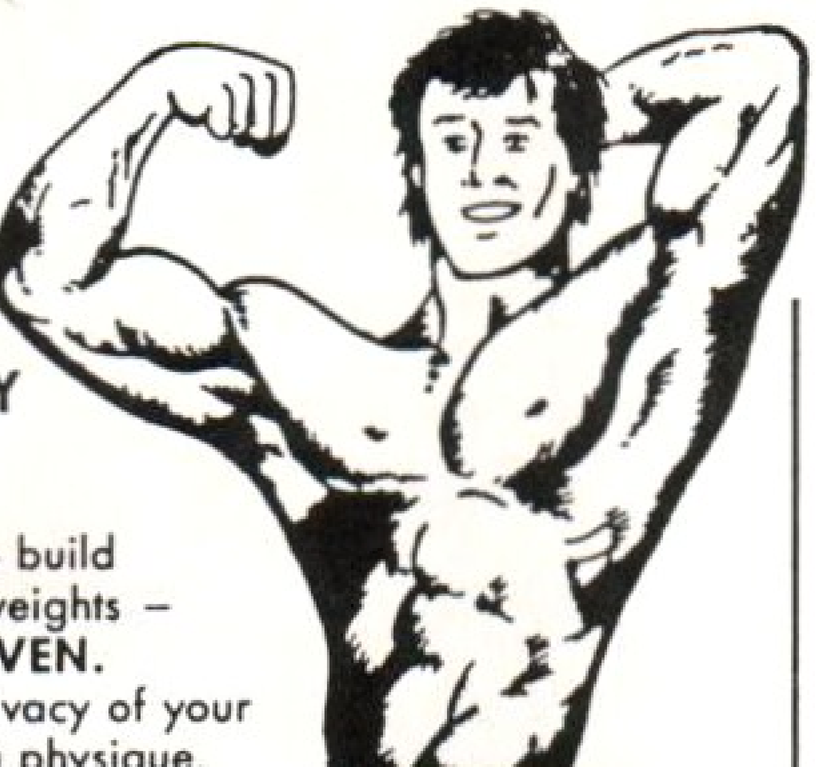
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RINGS OF ZON

PDSOFT 1247

I haven't seen anything like this for years. *Rings of Zon* is sort of like an arcade adventure, where you wander around a fortress, going down stairs, picking up objects and generally being a fantasy hero.

The system used is easy to pick up – you simply use the numeric keypad to move your character around, and objects are automatically picked up when you walk over them. Occasionally you need to swipe vegetation out of the way with the aid of your trusty club, in order to gain access to some of the more obstructed items.

Objects to pick up include swipe potions (which you need in order to lash out), teleport potions, keys (to open locked doors) and life stones – these give some protection against the demons.

Did I say demons? Each screen has a horde of these little nasties. The movement system reminds me a lot of the old, classic Daleks, where a set of monsters chases you around – you move, and then they move, you move and so on.

The only difference is that in *Rings of Zon* you can run faster than the demons, so that with a bit of skillful keyboard work you can outmanoeuvrer demons and hopefully reach the next set of stairs.

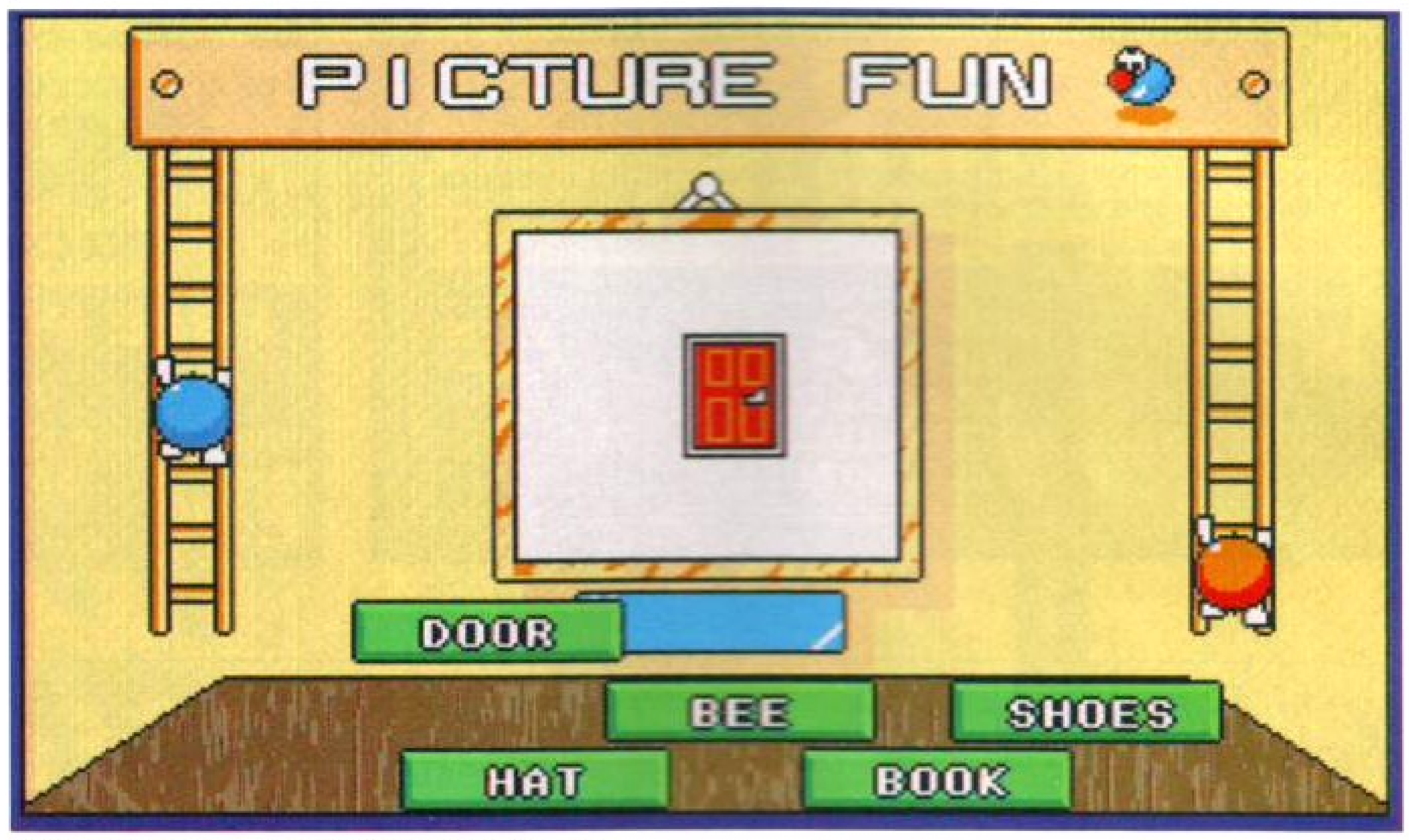
Rings of Zon isn't everybody's cup of tea (the graphics are quite small and the animation is non-existent). If you like fantasy games like the Ultima series you'll find this game quite challenging while being easy to pick up. Nice one George Broussard.



Although this game is graphically uninspiring, *Rings of Zon* does manage to combine a couple of quite different game styles very well indeed.

FUN TIME

PDSOFT L8 & L9



Now let's see ... Looks like a door to me!

Here's an excellent set of educational programs for young children (or indeed, anyone who has difficulty with reading and writing). It comes on two disks and is an AMOS port by Pollysoft from the STOS original – I think.

On disk one there are four programs. These are *Shape*, which is pretty simple – there are six windows on the screen. Inside these windows are shapes which have to be matched to each other to complete the game. Difficulty ranges from very simple (matching shapes are next to each other) to tricky, where you actually have to guess.

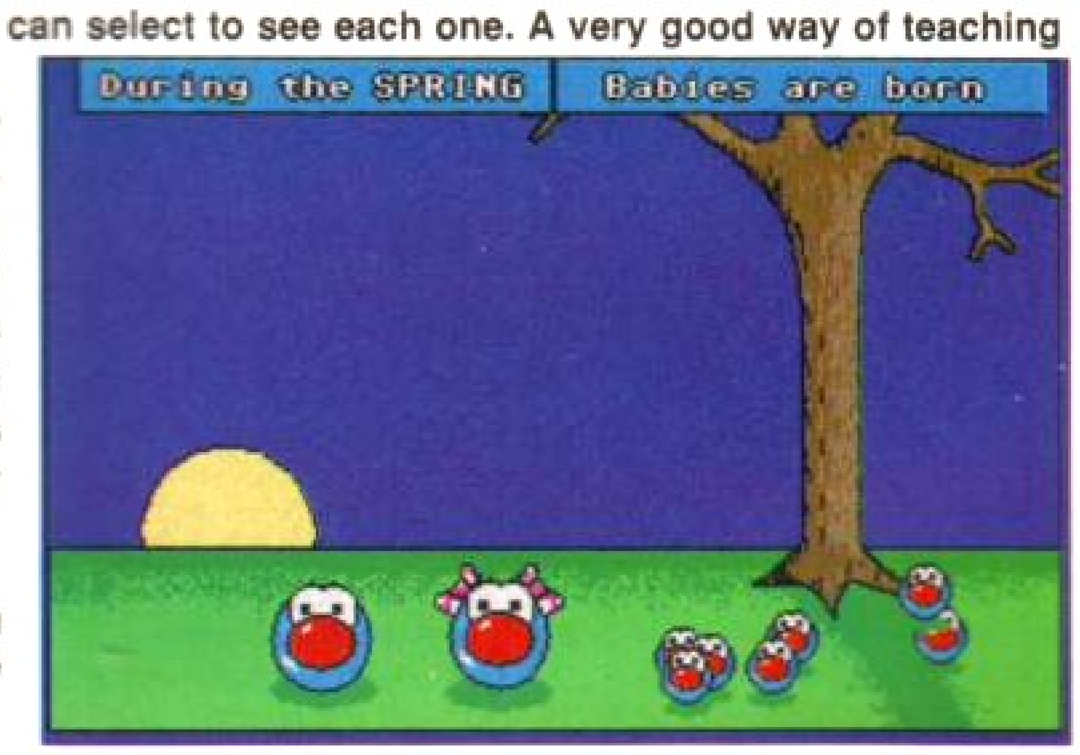
The next two programs are a bit less technical. One is a keyboard tutor, which helps teach the layout of the keyboard by asking you to press one key at a time, and the other is a clock program, to teach telling the time – the mouse is used totally for this, selecting choices from the screen.

Finally there is *Picture Fun*, which helps to build up a vocabulary by showing a picture and asking the human operator to match the word to the shape. This can be placed in easy mode (just one choice) or difficult mode (where there are five choices).

On the other disk are three programs. The first of these is a teaching exercise about money, prices, and how to tell the difference between different kinds of coins. Although all right in it's own way it's not quite as intuitive as the other programs – if children do not know anything about the subject it will not teach them very much. For reinforcing what a child has already learnt, though, it's quite a good program.

Seasons uses quite an original approach. You select which season you want to study, and the computer plays a series of simple animations about each of them. After they have all displayed, the set of descriptions is shown and you can select to see each one. A very good way of teaching what words mean.

To round off there's a mouse tutor program. This clearly betrays the programs origins (it's an Atari mouse – big deal) but uses a simple system to teach people the skill of using a mouse. It uses various games involving an on-screen mouse after some cheese. If it sounds simple, it isn't – it certainly put my mouse skills to the test.



Seasons uses a very subtle teaching method – displaying the action and the word description.

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112 Digital Concert VI: Excellent!
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351 Avenger Megademo: good.
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518 Crusaders Space deleria & more.
557/558 No Brain no pain: 2 disk set
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614 Budbrain 2: New, excellent!
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004 Vangelis demo: Superb demo!*
005 Enterprise leaves dock: Great! *
011 Newtons cradle & 2 more: Brill!
012 The Run Anim: Fab car chase *
034 Cool cougar demo: Great! *
050 Walker demo 1: Great! *
051 Walker demo 2: Excellent! *
052 CX1: Fab ray traced anim! *
058 Ghostpool & Drip: Excellent! *
059 Magician & Jogger. Good! *
370 Colour cycling: Nice slide!
380 Bird anims: Done in Sculpt 3D!
409 Fractal flight: Superb 1Mg *
411 Busy bee anim: Brill ray traced *
492 Basketball Boing etc: good *
493 Agatron anims: F15, Star trek!
608 Dragons Lair II (Timewarp) Fab!
692 Miner Anim: Good little Anim!*
798 Superwoman anim: Quite good!*
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857 Agatron17: Twok & Mench!*
858 Agatron24: Kuli & Ping pong!

Slideshows
044 Super Ham Cars: Stunning!
067 Dynamic hires: Unbelievable!
078/9 Agatron 6+8: Ray traced, fab!
097 Real 3d: Mega ray tracing!
606 Agatron 9: Latest Tobias slide!
710 Desert Island Slide: lots of pics!
774 Nik Williams no 2: Superb!
775 N W Dynamic hires: Jawdropper!
866 Lambourghini Countach: Car pics!

Music & Music Utils
055 Flash music: Dance music disk!
060 100 64 tunes: Brill disk, a must!
113 Genesis: Land of Confusion!
156 Soundtracker: Several versions!
157/158 Loads of Tracker samples! 2
190 Games music Creator. Good!
245 Mididisk Lots of synth progs!
246 Fish 323: Casio CZ editor!
248 Amiga chart III: Black Box etc.
317 Fish 300: Realtime pitch conv!
322 Perfectsound sampler & samples
428 TSR music 5: Technotronic type
483 Music: several progs & midi!
510 Burning Independence 2: Brill!
513 Depeche Mode music: Good.
534 Dmob 3: Amazing clear samples.
562 Dead dance thrash: Metal music!
587 Amigadeus: Mozart on Amiga!
589 Classix 2: Bach, Handel etc!
599 Audio Magic: All the Trackers!
602 Silents music: Some Fab tracks!
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761 Stereo evolution II: Good disk!
763 Zarch music 3: Another goodun!
769 Prologue music: 5 tracks!
796/7 Power of love: on 2 disks!
801 Get wicked/Oxygene remixes!
803 Groove in the heart! Dance!
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863 Special brothers: Disco + Anthrax!
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278 Uedit: Wordprocessor program!
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303-305: Scanned clipart: good! 3
309-11 C Manual on 3 disks £2.85
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617 Mcad: Cad design program!
636 Clight: Excellent ray tracer!
669 Master virus killer: Detects 105!
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043 Holy Grail: Text adventure *
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424/5 Learn & play: Fun for kids! 2
426 Amigaman games pack: 10!
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LPD7 4 Way Lynx: Puzzle game*
LPD8 Work & Play: 3 educational!
LPD10 Word Factory: Spelling aid!
LPD11 Go Getter: Good game!*
LPD12 Hypnotic lands: Nice game!*

FRED FISH 467

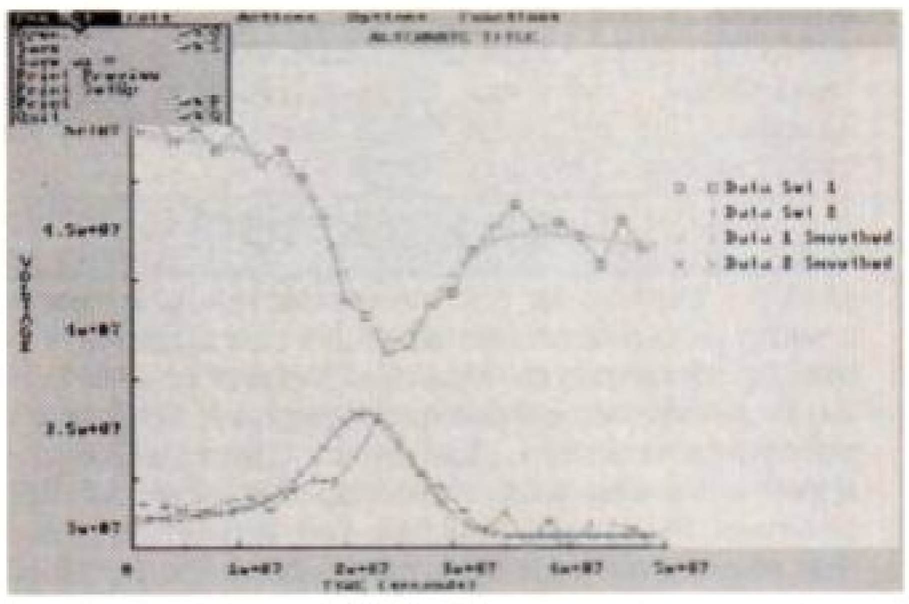
START FF467

What's going on? A Fish disk with only two programs on it? The reason is that one of these is in fact very impressive. *MultiPlot VXLNd* is the latest update of a long running program put together by Alan Baxter, Tim Mooney, Rich Champeaux and Jim Miller.

What it does, in theory, is very simple – it plots graphs. However, it will attempt to plot literally any graph. It takes its data from a text file (which you set up with *Notepad*, for instance) and produces, from this, automatically scaled graphs.

The documentation is extremely comprehensive, and the program is powerful while being fairly easy to use. It can output graphs in IntroCAD, mCAD, IFF, Hewlett Packard Graphical Language (HPGL) and Postscript files for those lucky enough to own laser printers. It should satisfy those people who are continually asking me for a plotting program.

The other program is a small Nico Francois utility. It's called *PowerSnap*, and once installed (there's a small installation program on the disk to take care of that) it lets you paste characters from one part of the screen into another part. Makes using the CLI a bit easier, and even works with some word processors – so long as the text isn't too big.



Multi-Plot is a very powerful graphs plotter. Polynomials, lograrithmic, you name it - this will sort you out

DEADLINE

AMOS APD123

This particular demo has been written by Shadow Software using the new TOME extension to AMOS Basic. TOME is a set of 26 new commands, including a map designer to create games that are bigger than the screen and scroll around very smoothly.

The theme of *Deadline* is slightly novel. You take up the position up of an editor for an AMOS newsletter, unfortunately, though, a sudden gust of wind has blown all of your computer gear, as well as your disks, all over the town's landscape. It all has to be collected in order for you to complete each level.

To hinder you along the way are several types of low life. Muggers patrol the parks, as do rather vicious guard dogs. You can plant stop signs in front of these (to turn them away) and there are several shovels that you can use to dig holes to trap them. Alternatively you can do what I did – run away.

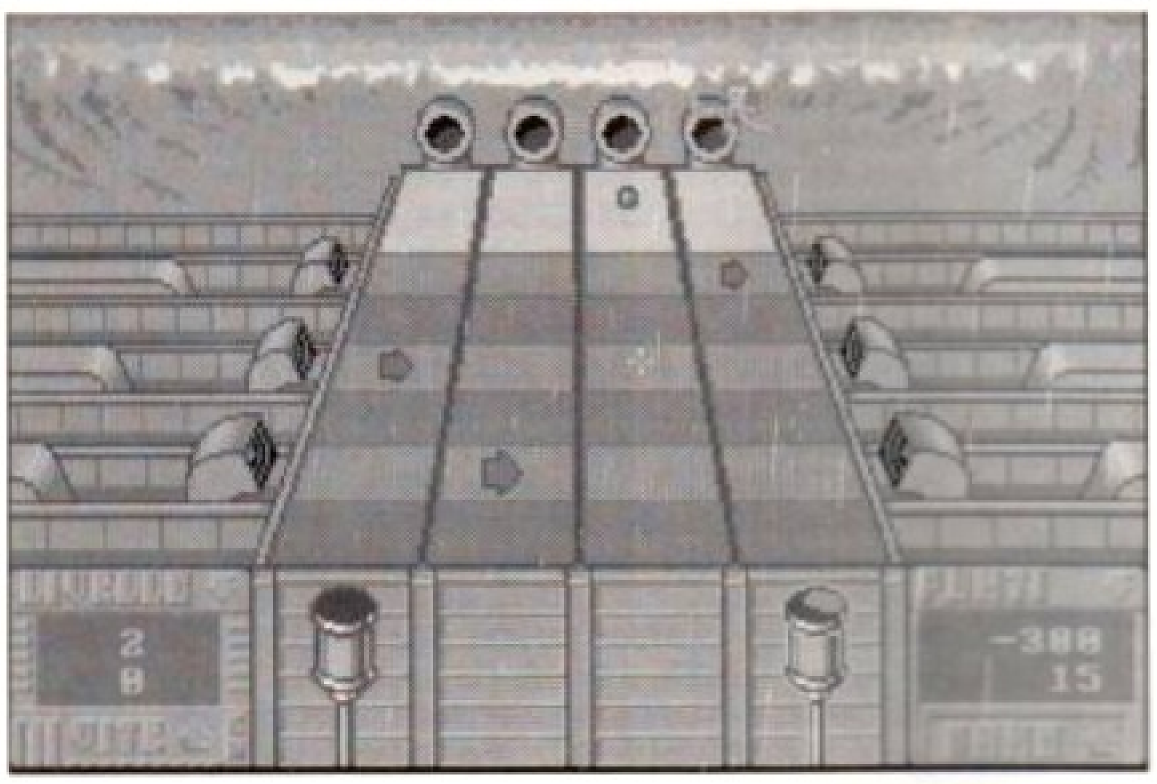
The best fun is had when jumping into the car and racing around the screen. All in all it's a cute little demonstration of what will probably prove to be be a popular AMOS extension. Most AMOS programs to date have been based around one screen at a time.

HYPNOTIC LAND (1 MB)

AMOS LPD12

This is one of the better produced AMOS games that I've seen. The idea is very simple – coloured balls come down four conveyor belts towards you, and you have to put the balls into wooden barrels of the correct colours.

The tricky bit is that sometimes the balls are on the wrong belt. You then have to put an arrow in front of it with the mouse to divert the ball onto an adjacent belt. Still sounds a bit simple?



The fly in the ointment is a set of meanies who fly down the screen and drop arrows on the belts to foil your plans. Pressing the right mouse button will shoot them, but they move incredibly fast.

It doesn't sound like much, but it's really fun to play and incredibly addictive. The graphics and sound are very well executed, and it's a fun game that's hard to put down. Well done to Lindasoft, an Italian coding crew – more please.

If you want a manic mouse game with bags of addiction, look no further than Hypnotic Land.

CHAOS STRIKES BACK HELP

SENLAC

This one is quite useful for those who need some help with the game *Chaos Strikes Back* or it's prequel, *Dungeon Master*. The first nine levels of *Chaos* are mapped out – you can load the pictures into any suitable art package like the *Deluxe Paint* series.

There's also a saved game for *Dungeon Master*, which gives you four characters of very respectable experience. The only real snag is, though, that to set up a suitable save disk is a bit tricky, and the documentation that tells you how to do this has to be either read from the CLI (or the Shell) or loaded into a word processor.

There's quite a few other bits and pieces on the disk, for instance a spell-help screen. The only problem is that to get the best out of this offering you really have to know how to use the CLI or Shell.

Expect this one to be a bit delayed too – I understand that Senlac are having the maps redrawn. They're accurate enough, just a bit difficult to read. Still, you wouldn't really want to cheat too much on a game like this, now would you?

CONTACT LIST:

17 BIT SOFTWARE, PO Box 97, Wakefield WF1 1XX, 0924 366982,
AMIGANUTS, 169 Dale Road, Hollybrook, Southampton, SO1 6QX, 0703 785680,
AMOS PD, 0942 495261, PDSOFT, 1 Bryant Avenue, Southend-on-Sea, Essex SS1 2YD, 0702 612259,
SENLAC SOFTWARE PD, Unit 6, West Hill Arcade, George St, Hastings, East Sussex, TN34 1BN, 0424 445498,
START COMPUTER SYSTEMS, 091 564 1400

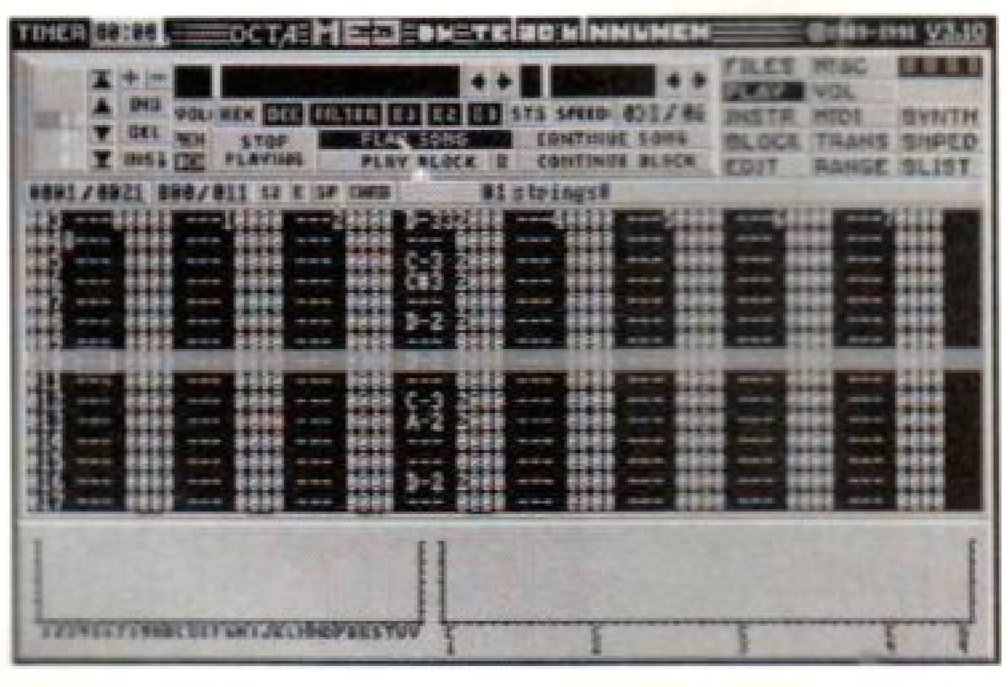
TOP TEN UTILITIES

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Title	No.
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3.Trial and Error Utils	838
4. Opti Utils 1	785
5. Med V3.0	918
6. Music Utils 1	778
7. New Comms Disk	769
8. Text Plus	F366
9. Loan Calc	F375
10. Word Factory	LPD10

BITS 'N PIECES

Last month I said that Senlac were producing a set of Licenseware Sculpt objects. Well I'm afraid I was wrong – these objects are actually commercial products. That is, the copyright of the objects belong with Senlac, but you can use them in your own animations so long as you credit Senlac. They are thinking of bringing out a Turbo Silver version of the objects if anyone is at all interested...



In Scandinavia, Teijo Kinnunen is busy working away on OctoMED. What he is doing is rewriting his popular music editor program to use four or eight channels of sound.

It's not going to be completed for some time yet, and there are rumours that Teijo is thinking of making it a commercial product.

Although it is nowhere near completed, this picture clearly shows the eight-channel nature of the forthcoming OctoMED.

Public Dominator, Amiga Software –

What is Public Domain?

Public Domain Software is simply software that is allowed to be copied freely, since the authors have decided to share their programs with all users. For this reason software can be grouped together on disks which are sold at an equal price depending on how many you buy. When you buy any of the disks on this page you may copy and give them to anyone! Each disk has a code number which is denoted with this symbol - •- what follows the code number is a brief discription of what is on the disk. All the programs are fully working and most come with documenation on the disk. We will also give as much support as is reasonable.

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•PSFF1 - Fletcher Font Pack 1 contains 66 MULTI COLOURED IFF fonts on 6 disks for £15.00. All fonts are suitable for DPaint or any program that uses IFF fonts.
•TBAG29 - ShowFont V3.3 shows all 256 characters in a given font.

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•AMP1 - Home Business Pack : UEdit the easy to use wordprocessor, Visicalc and VC 2 spreadsheets, RIM and Jbase databases and Amiga Spell the spell checker etc. 3 disks only £7.50!
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•APDC21 - Comm V1.34, Wombat V3.01, Handshake V1.20a C-Kermit.
•SLIPDISK31 - StarTerm V3.0 full features terminal prog. VT100 V2.0, Comm V1.3, AHost V0.9.
•FAUG62 - Access V2.6 comms package.
•FAUG99 - TAG the BBS.
• FFISH 172 - HandShake V2.12a is a fully featured VT52/100/102/220 terminal emulator.
• FFISH 275 - VT100 v2.9 includes Kermit and Xmodem.

NEW AMIGA USERS

•AMP4 - Starter Utility Pack: This pack was compiled with the new Amiga user in mind, to enable them to get just about all the utilities that you may ever need, plus a wordprocessor and a database! Each disk in the pack automatically takes you into the friendly Work Bench enviroment, all the programs are icon driven and have any necessary documentation. The pack includes: The four main file compressors used on the Amiga - ARC, LHARC, Zoo and Power Packer, Dir Work the friendly enviroment that allows many of the CLI commands to be executed at the click of your mouse, Text Reader allows you to execute text on screen as a CLI command using your mouse, DFC2 the multi tasking disk copier, All the AmigaDOS Replacement Project commands, Virus X the virus detector and destroyer, Icon Meister the excellent icon editor, Comm the communications package, Machll the mouse accelerator, Disk Storage Deluxe displays information about disk drives, Disk Salv attempts to salvage data from damaged disks, New Zap the sector editor, Safe Boot the boot sector database and others. Also UEdit the wordprocessor, Amiga Spell the spell checker and JBase the excellent database.
All this is available on 3 disks only from Public Dominator for the mega price of £7.50!

UTILITY

NOTE: We have chosen the best disks with the latest versions of utilities to feature in this advert, however many more files and utilities are featured in these and other disks but are not detailed here; FULL details are to be found on our DiskCat for £1.00.
Our DiskCat has a fast search option for ease of use.
•FFISH366 - PrintStudio V1.2 print any text file in many styles, print part of or a whole picture, screen or window, also control printer and much more.
•FFISH362 - ArchEdge V1.5 a shell setup for ARC, ZOO, LHARC.
•TBAG3 - Disk Cat the disk cataloguer.
•TBAG4 - DirUtil 5 the disk manager.
•TBAG6 - Biorhythms the life cycles program, Blitz Fonts speeds up fonts.
•TBAG9 - FastMem toggles on/off Expansion, FuncKey assign text to F1-F10, Word Count the number of words in a file.
•TBAG10 - AutoPic2 shows all (.PIC .HAM) in directory.
•TBAG13 - StepRate change step rate of disk drive.
•TBAG16 - CLI Wizard V1.2 mouse operated CLI. Introducer DIY demo with your own picture, text and sound! Planet will wrap a flat IFF picture into a sphere.
•TBAG17 - Database Wizard V1.1 name & address database for 400 records.
•TBAG18 - BIG is a screen magnifier. DoTil V3.4 the directory utility.
•TBAG19 - Pyro a screen blanker shows a fireworks display.
•TBAG20 - Brush2Icon turns a brush or picture into an icon.
•TBAG21 - VScreeen allow screens to be larger than the physical one, also lots of window utils: WSize, WMove, WMax.
•TBAG23 - Crunch2 archive a program but still executable. Hermit saves screen at keystroke using hot keys. Pointer Animator 15 colours animated pointers. ScreenX V2.2.
•TBAG24 - ClickDOS V2.04 directory lister. QView V1.0 text file viewer.
•TBAG26 - Daisy Wheel IFF picture file printer.
•TBAG30 - MyMenu create your own menu on WB to run any commands. Icon Meister V1.4 THE Icon editor. Disk Storage Deluxe V1.10 shows details of ALL mounted devices.
•TBAG38 - MadSizer allows you to size a window from any corner. Display V3.29 an anim displayer for ANIM 3,4 and 5, Hash and IFF all in any resolution.
•FFISH342 - IE V1.0 is an icon editor which can create and modify icons upto 640x200 pixels.
•PDOM278 - LHARCa V0.99a data compression program that is 100% compatible with MSDOS LHARCV1.13c.
•PDOM279 - European Software Agency Utility 1: Amiga ToolV1.5, Boot DIntro V1.0, BootGenerator V1.5, BootLeg V2.1, Character Editor V1.0,Coder Board V4.0, Cosaque V1.1, DCopyII, Deluxe Presed V2.0, BlockV1.3, Font Ripper, Guru Maker V1.0, ISCAmiga v1.5, Memory Searcher V1.0, Menu Maker v1.0, No1Setracker V1.0, Power Utility V2.0, PowerPacker V2.3a, PPMoreV1.2, Pseudo Ops. Save IFF, Scanner V2.0,Scroll Maker 2, Seek Destroy V1.0, Seka Source Rescuer, StartupCoder V1.0, Structure HunterV1.0, Time Cruncher V1.1, TVField Writer V1.1, Vector Check V1.0, View Boot V1.01, Virus Expert V1.4, Virus Slayer V1.0, VirusKiller V3.10.
•PDOM280 - The Champions Total Utilies Vol 1: Boot Generator, Boot Girl, Bootmaker, BootWriter, Character Editor, Demo Maker, DiskX v2.2, Flash Ripper, Font Ripper, Guru Maker, Guru Master, Icon Master, Make A Menu, NoiseTracker, Power Packer V2.3b, PPMore, PPShow,Sceneray, Graphics Searcher, SetKey, Slide Show Maker, Time Set, Tristar Virus Killer and TxED.
•FFISH163 - Machll V2.4c features: configurable, your help screen, mouse accelerator, PopCLI, Screen Blanker, Mouse OFF, SunMouse (activates a window by placing mouse it), Click To Front (bring window to front by clicking on it), Cycle (move a window or screen to back with left then right mouse button click), Window and Screen Shuffler, CLock, Alarm, Beeper etc.
•FAUG50 - Short Cut allows you to allocate text to a single key stroke thus CLI commands are easier to type.
•PDOM141 - ICONS!: Draw Icons, Tool Icons and Disk icons. Includes software to edit.
•PDOM276 - Amivision Utility Disk 4: Virus X4, Zero Virus, Kill Da Virus3, PCopy, VCheck, Sectorama, FFormat v1.1, Pseudo Virus Killer 2, Boot Intro.
•PDOM300 - The Master Virus Killer V1.9. Recognises 105 viruses, a full list is on our DiskCat.
•PDOM277 - Dark Star Virus and Crunchers 2: BS9 KillerX, Kill'Em, Lamer Destroyer, Pseudo Ops, Killer and Seek & Destroy virus killers. Byte Killer, Crunch Master, Data Cruncher, DefJam Cruncher, Crunch IFF Pics with shower, DPaint Unpack, DragPack, Flash Packer, HQC, ISC, Master Crunch, Mega Crunch, Power Pack, RSI Cruncher and Super Cruncher.
•TBAG31 - ShoWiz V2.0 show ANY picture with or without a script, 1 picture or several disks full, also play a music file in the background! Also show text files in any colour!
•FFISH105 - Record-Replay V2.0 allows you to record and play back mouse and keyboard sequences.
•PDOM62 -The Public Dominator Anti Virus Disk: Virus X V4.1, VCheck V1.2 (for memory), VCheck V1.9 (for disk drives), ZeroVirus V1.3 the fully integrated virus detector and killer. Also BootBlock Champion the utility and information on boot blocks.
•PDOM93 -ARP v1.3. The AmigaDOS Replacement Project includes text manual files.
•FFISH228 - Jazz Bench V0.8 is a multitasking WB replacement.
•FFISH229 - Alarming Clock.
•FFISH246 - NoClick V3.6 stops drives clicking when no disk entered. LabelPrint v2.5b disk label printer.
•FFISH251 - DiskSalv v1.42. DiskSpeed v1.0 test disk speed.
•FFISH286 - FastDisk a disk Optimiser.
•FFISH290 - XIcon execute CLI commands from a script by clicking an icon.
•FFISH338 - SID V1.06 is a very comprehensive directory utility.
•PDOM304 - MessyDOS handles MSDOS formatted disks exactly the same way as you use files on native AmigaDOS disks. Fully functional, read/write version.
•FFISH325 - Batchman V1.1 is a program that allows the user to execute CLI programs and batch files simply by clicking on a gadget.
•FFISH304 - Verify V1.2 Walks a directory hierarchy reading all files, reporting any files that can't be entirely read.
•FFISH243 - ImageLab V2.2 is an IFF pictures manipulator. NoClick V3.5 stops the disk drive clicking if there is no diskin thedrive. PassWord V1.21p you specify the password for your systemsecurity. Pcopy V2.0 the excellent disk copier. SimGen adds a 2 or 4 colour picture to your WB screen.
•FFISH360 - UUCP V1.06D. An implementation of uucp for the Amiga, including mail and news.
•FFISH244 - BBChampion V3.1 load, save and analyze bootblocks. BootIntro V1.2 you specify The headline text of upto 44 characters and the scrolling text of upto 300.
•FFISH279 - MRBackup v3.3d the hard disk backup utility.
•FFISH300 -TitleGen v1.6 excellent script language that creates scrolling text on screen in any font and upto 500 lines long!
•FFISH213 - 300 8 colour program icons!
•FFISH168 & •FFISH169 - Matt Dillion disk special includes loads of utilities and source: Config V1.0, Clock V1.0, DME V1.31,DMouse V1.1, Backup V2.01, SUPLIB, LIBREF, DRES V1.0, DASMV2.11,FILES V1.2, SHELL V2.1, FINDIT V1.0, LIBS V1.0, SCATV1.0, ADDCR V1.0, REMCR V1.0 & CMP V1.0You need both disks.
•FAUG41 - ARC V0.2 compatible with MSDOS ARC V5.0.
•AMICUS22 - Printer Driver Generator V2.3.
•FFISH258 - DMouse v1.2 is a versatile program that includesscreen/mouse blanker, auto window activator, mouse accelerator,popcli, pop window to front, push to back etc.
•FFISH131 - DFC is a disk copier that multi-tasks.
•APDC15 - Icon utilities: full of icon files and creators. Some animated!
•APDC18 - Floppy Disk Utils: Quick Copy V1.0, Disk Mapper, DiskSalvage, Virus check, System Utils: Blitz V1.0 text editor, TimeSet,ACalc calculator Amiga Monitor V1.1, MeM Grab fast memorygrabber. Directory Master V1.1.

EDUCATION

•AMP5 - Suitable for 8's and over features: 2 excellent map drawing programs choose the Earth coordinates & it will draw the map allowing you to enter text and print or save. Evo follows the Evolution of life with skulls and maps etc. Chemistry element periodic table simply click on the chemical and a window appears showing every detail on that chemical including a picture of the crystal structure. Unit conversion is a program that allows you to choose all types of unit i.e. length, time, weight, speed etc. and then do conversions and comparisons within them e.g. Feet to millimetres a very comprehensive program. German Language will teach the basics of the German langauge. Tutor is a speak and spell tutor. Also includes Study Aid Card, Hermes Formula, Cloud, The Weather, GEO Time, Gravity Simulator, Func2D, Gravity Well, Air Foil, Wave Maker and others. A 5 disk pack for £12.50!
•AMP6 - A new 5 disk educational pack exclusive to Public Dominator this pack is more suitable for under 8's: Colouring Book a good colouring book for young children features excellent graphics, Arc Angels Maths good maths program for children that includes graphics to aid learning, Thinga Majig puzzle program with 24 puzzles to choose from, Work and Play 3 excellent educational programs: Funtimes table and Let's go shopping are 2 maths programs and Click Clock teaches children to tell the time. This program Requires 1MB RAM. The Word Factory, very good game enviroment for teaching spelling. A 5 disk pack for £16.50!

MUSIC

•AMP11 - 5 disk pack of Sonix files & player for £12.50!
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DEMOS & ANIMATIONS

016 Space Ace Demo
085 Red Sector Megademo (2)
089 Gymnast Animation *
103 Wild Copper Demo
107 RAF Megademo (2)
127 NewTek Demo (2) *
157 Cool Cougar Animation *
161 Kylie Minogue Demo (2)
240 Puggs in Space Cartoon
261 Deathstar Megademo (2)
280 Tree Frog Animation *
288 The AMOS Demo
298 Unicycle Animation *
399 NewTek Demo 3 (2) *
447 Micro Mix Demo
483 Elvira Demo
499 Showbiz Animation *
568 Wings Animation
646 Predators Megademo (2)
711 Arcadia Megademo
744 Red Sector Cebit Demo
747 Popeye Meets Beachboys
762 The Run Animation *
771 Congaman Animation *
773 Shark Animation *
821 Popeye Demo / Game
825 Budbrain Megademo (X)(2)
853 Dragons Lair Demo *
854 Bread/Home & Away Demo
865 Coma Demo
881 Flash Megademo (2)
895 Trip To Mars
897 Scoopex Mental Hangover
903 Shadow of Beast 2 Demo
906 Madonna Cartoon *
944 Magnetic Fields CD Demo
946 Subway Clapping Hands
947 Mars Flight Animation *
954 Teenage Turtles Demo
964 Operation Vark!

GAMES DISKS

045 Golden Fleece Adventure
117 Monopoly
135 Classic Board/Card Games
172 Flaschbier Game
195 Electric Train Set
251 Blizzard
314 Breakout Construction Set
315 Return to Earth
496 Holy Grail Adventure *
498 Wanderer Game
648 Star Trek (USA) (2) *
680 Learn & Play (2)
689 Eat Mine
727 Star Trek (Richter) (2)
766 Treasure Hunt (Age 6-10)
823 Pseudo Cop Game
957 Pipeline
962 Drip!
987 Snakepit
991 Jeopard *
1004 Games Disk 9
1084 S.E.U.C.K. Games
1113 Wet Beaver Games
1230 Dragon Cave
1245 Rings of Zon *
1283 Sub Culture
1408 APD59: Super Quiz
1411 APD62: Arcadia
1434 APD85: Reversi / Snakes
1445 APD96: Pair-It
1509 APD102: Chainsaw Death *
1510 Pick Up A Puzzle (2) *
1512 Picture It (2) *
1517 APD110: Crossfire *
1520 APD115: Balloonacy
1528 APD130: Wooden Ball *
1531 Simon Says/Space Maths
1532 APD137: Tile Trial *
1533 The Jar *
1539 Megaball *

UTILITIES DISKS

051 Visicalc Spreadsheet
081 UEdit Word Processor
110 Disk Utilities
111 Grafix Utilities 1
118 Grafix Utilities 2
119 Amiga MCAD
152 Virus Killers Disk
180 Pagesetter Clip Art
210 Icons!
259 Ultimate Bootblock Coll. (2)
343 Intromaker
346 TV Graphics (2)
348 APDC 25 (Programming)
353 ShoWiz 2.0
354 PowerPacker 2.2a
380 PD Spectacular
410 DPaint Cartoon Brushes
442 DPaint Fonts Disks (4)
456 Chet Solace Extravaganza
458 HAM Radio Special (5)
495 ClickDOS (CLI Helper)
516 A68k Assembler/C Compiler
536 Red Devil Compacting Utils.
537 Red Devil Utilities Disk 3
546 Iconmania!
571 Jazzbench
580 Dope Intro Maker
591 Business Card Maker
595 Amateur Radio Disk
632 MessyDOS
633 Analyticalc
642 C Manual
643 SID v1.06
661 Programming Disk
682 Sound Applications (2)
684 Video Applications (2)
697 Graphics Management (2)
901 THE Comms Disk
902 QED Text Editor
950 Mercenary Virus Killers Disk

MUSIC DISKS

022 Sound Atax
044 Batdance Remix
052 Awesome Sounds
061 J M Jarre - Definitive
166 Vangelis *
187 Crusaders Audio X
237 Zee's Hip Hop Music Disk
335 Girls Need Love
398 Powerlords: Power Musix 1
407 CD Player *
409 Crusaders: Freakd Out!
424 Made in Heaven (2)
497 Amiga Chart 5
518 Bopus Polupus
534 Vision Music Masters
552 Music Invasion 3 (2)
654 Powerlords Power Musix 2
713 Flash! - Queen (2)
722 Beatmaster Club Mix
724 Technotronic Remix
746 Crusaders Bacteria
824 Digital Concert V
833 DJ Disco Leif 2
857 900 / Oxygene Remix *
866 Pan III Music Disk
870 Bruno's Music Box 2
910 Darkling Lords Music Disk
914 Special Brothers Music 2
922 Phalanx Beatbox
924 Game Boy Music Disk *
930 Rebellion
935 Madonna: Hanky Panky
941 Soundtracker Jukebox
959 Scorpions : Eargasm II
969 100 C64 Games Tunes
970 The Comic Strip Remix
976 Scoopex: Beast Sonix
982 E & L: Get Up!
986 Amaze : Revolutions
993 PSA Music Demodisk 1
1026 Digital Concert VI
1061 Captured Imagination
1068 Exile Chipshop
1077 Superior Sounds V1.1
1107 Stop Right Now! *
1243 Chip Music Festival
1248 LSD: Supreme Music 1
1284 Cave: Synthetic Power
1292 Crusaders Does Genesis
1505 APD98: Music 24
1508 APD101: Auto Player V1.1b
1522 APD120: Music Player *
1527 APD129: Music Demo 1

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DEMOS & ANIMATIONS

966 Bloodsport 2
1001 Station at Khern ** (3)
1008 APD22: Fun School 3 Demo
1033 At the Movies **
1034 Stealthy 1 Animation *
1043 Razor 1911: Vertical Insanity
1053 Not 9 O'Clock News 3 (2)
1088 Epic Demo *
1089 Not 9 O'Clock News 4 (2) *
1092 Pharaoh Animation *
1093 DPaint 3 Demo (2) *
1105 Crionics Neverwhere Demo
1110 Fractal Flight
1188 Fillet The Fish
1190 Pussy : Innership
1200 Raiders of Lost Ark Anim *
1229 Budbrain 2
1231 Awesome Game Demo
1235 Kickboxer Demo
1238 Evil Dead Demo (X) *
1246 LSD: Comix Disk 1
1256 Killing Game Show Demo
1271 Legend of Billy The Kid *
1275 Penguin Animations
1280 Horizon: Sleeping Bag
1287 Wrath of the Demon Demo
1400 APD51: Weird Science
1453 More Aerotoons *
1474 System Violation Demo *
1477 Ecstasy Demos *
1507 APD100: AMOS Demo 2
1516 APD109: Weird Science 2
1518 Panthorus Megademo (2) *
1524 APD124: Bob Maniacs *
1525 APD125: Benson Demo 2 *
1529 Armageddon Demo *
1540 Amy .vs. Walker Anim. *
1541 Batman Animation *

SLIDESHOWS

078 Vallejo Fantasy Art (2)
082 Ray-traced Pictures
163 NASA Slideshow
167 Digiview Slideshow
171 Patrick Nagel Pictures
185 Escher Slideshow
238 TV Sports Basketball
282 Forgotten Realms
617 Neighbours Slideshow
725 Diggy Piggys Slideshow (2)
742 Madonna Slideshow
767 Cinemaware Slideshow
768 Action!
814 Viz Slideshow
831 Utopia Cartoon Slideshow
863 Scream Queens (2)
878 Sun Connection: Slide 3
891 Creepshow
899 Madonna Slideshow 2 (2) *
942 Garfield Slideshow
968 Gorezone Slideshow (X)
1044 Desert Island Slideshow 2
1051 Total Recall Slideshow
1062 Golems Gate Slideshow
1073 Fraxion Fantasy Slideshow
1082 Annie Jones Slideshow
1085 Comic Slideshow (X)
1103 Girls of Sports Illustrated
1210 Turtles Slideshow
1211 Fractal Fantasy
1232 Jimi Hendrix Slideshow
1242 Back to the Future
1272 Nemesis: Prologue
1277 Fraxion: Divine Visions (2) *
1279 Forgotten Realms '90
1475 Nemesis: Chapter 1 (2) *
1480 The Age of Slack
1523 APD121: Nik Williams Demo

UTILITIES DISKS

1022 AMOS/RAMOS Update 1.21
1023 Future Composer
1058 Zero Virus V3.0
1071 Noiseplayer V3.0
1078 Prophecy: Fractal Scape
1079 Prophecy: Coder Mag 1
1095 Catalogue Workshop (2)
1097 DTP Clip Art (2)
1099 Video Graphics (4)
1117 Geneaology *
1198 Soundtracker V4.0 (2)
1222 Picture Format Convertors
1225 Hardware Projects Mag
1228 ST Emulator
1234 Tetra-Copy
1253 Red Devil Utilities 5
1255 Opti Utilities 1
1265 Cryptic Utilities 17
1269 SpectraPaint
1273 C-Light
1274 Star Trekker 1.2 Music Prog.
1286 Mandlebrot Generator 1.85 *
1294 Chaos & Fractal Programs
1360 DKB Trace (Fish 397)
1366 Fix Disk (Fish 403)
1383 Menu Writer (Fish 420)
1385 Art of Virus Killing
1432 APD83: AMOS Paint
1450 New SuperKillers Disk
1451 ElectroCAD
1452 AmiBase
1473 ARP 1.3
1514 APD107: AMOS Progs. 6
1521 FS3 Sprites (needs AMOS) *
1534 MED V3.0
1535 Master Virus Killer V2.0
1536 North C V1.3 (packed)
1537 North C V1.3 (unpacked) (2)

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SOF118 - GRAVATTACK, BULLRUN, WORLD
SOF396 - TENNIS, shareware vers (1meg)
SOF501 - (2disks £5)STARTREK, brilliant PD version. (1meg, 2drives)
SOF530 - SkyFight, Bleed, (not v1.3.7)
FF357 - EMPIRE, new version multi-player game. Keyboard or modem
FF347 - DRIParcade style game, . Good!
FF320 - AMIOMEGA, similar to Hack
FF312 - CHINACHALLENGE, shanghai game, MOONBASE lunar lander.
FF259 - Escape From Jovi, fast action game, multi-levels.

PICTURES

SOF20 - NASA DIGI-VIEW slides 14 pics.
SOF79 - SAM FOX SLIDESHOW in her usual state of dress!
SOF90 - Boris Vallengo's FANTASY PICS 3
SOF108 - PAGE3 PICTURES, Selection of good digitised pics.
SOF147 - FANTASY pictures, these are the BEST you'll see!
SOF149 - THE ADVENTURE CONTINUES, slideshow of the SpaceShuttle
SOF197 - BARBARIAN ladies, fabulously drawn pictures.
FF196 - the absolute BEST scanned pic's you'll ever see!

LANGUAGES

FF351 - PDC, publicly distributable C, complete system
FF347 - CURSOR, 3pass AmigaBASIC compiler
FF340 - NORTHC, C environment based on SozobonC.
FF339 - PCQ, self compiling PASCAL compiler.
FF337 - CMANUAL, complete C manual & 70 source examples.
FF314 - A68K, assembler, ZC, C compiler complete.
FF247 - ASSEMTOOLS, 140 routines for asembley programmers.
FF140 - StoneyBrook PROLOG - needs both disks (below)
FF141 - Disk two of above.
SOF184 - MODULA2 compiler, complete with documentation.
SOF549 - ARP 1.3, complete with full documentation.
APDC25 - FORTH, MODULA2, LISP & LOGO

MUSIC & MIDI

SOF10 - MIDIutil, MIDI2, PAN1.2, CZ101, CZL + DMCS MIDI songs
SOF11 - Hundreds of new instruments for CZ synths.
SOF262 - 2disks - Noise/Soundtracker set
FF349 - MED V2, Musical editor - very good

CLASSIC DEMONSTRATIONS

SOF3 - Fred the Baker, Roses Flower Shop.
SOF7 - THE PROBE shown on TV!
SOF34 - ROCKER, KAHNANKAS, BERSERK
SOF70 - BOING!, SPROING!, JUGGLER, TILT
SOF154 - EL GATO, RED BARON, (1meg)
SOF219 - 2 disk, 2meg version of the WALKER demo (£5)
SOF254 - 1meg version WALKER demo
SOF255 - 1meg version of WALKER2.
SOF414 - PUGGS IN SPACE, cute animation very well done
SOF546 - FRACTAL FLIGHT, (1meg)
SOF467 - NEWTEK demo reel3, new production (2disks/drives, 1meg £5)

UTILITIES & TEXT HANDLERS

FF375 - TEXTPLUS word processor
FF328 - ANALYTICALC for numerical analysis, includes spreadsheet etc.
SOF500 - 7disk set of CLIP ART (£15)
FF315 - AMIGAFOX, text processor with graphic facilities.
FF228 - JAZZBENCH multi-tasking wbench.
FF210 - CALC, scientific/programmer calc
APDC23 - Word processor, 2 spell checkers, 4 databases.
SOF15 - CLIP ART DISK for pagesetter
SOF17 - Ray Tracing Construction Set
SOF21 - CLIP ART DISK for Pagesetter
PAN48 - WORDWRIGHT word processor
SOF123 - MCAD, amiga CAD program
SOF126 - UEDIT, manipulate your files in
SOF169 - Cosmopolitan FONTS for Dpaint
SOF170 - FANCY FONTS as above
SOF171 - PUBLISHERS FONTS as above
SOF172 - VARIOUS FONTS as above
SOF191 - ARENDER v3, ray trace package
SOF240 - CHET SOLACE DISK, 26 utilities

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But Dad, it's not the stereo. It's my Amiga.

"Pull the other one, I wasn't born on the turnip truck in the last shower of rain yesterday."

But it is. Look. There are all these music and animation demos available on PD.

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CAVE DEMO COLLECTION

AMIGANUTS UNITED DISK 1009



Just a basic collection of demos and intros really! Most of them are pretty run-of-the-mill, but the *Motion* demo consists of some really wild imagery and is backed by some pretty heavy acid-dance music. Get on down!

MORE ERIC SCHWARTZ MOVIES

SENLAC SOFTWARE DISKS 1054, 1060, 1061

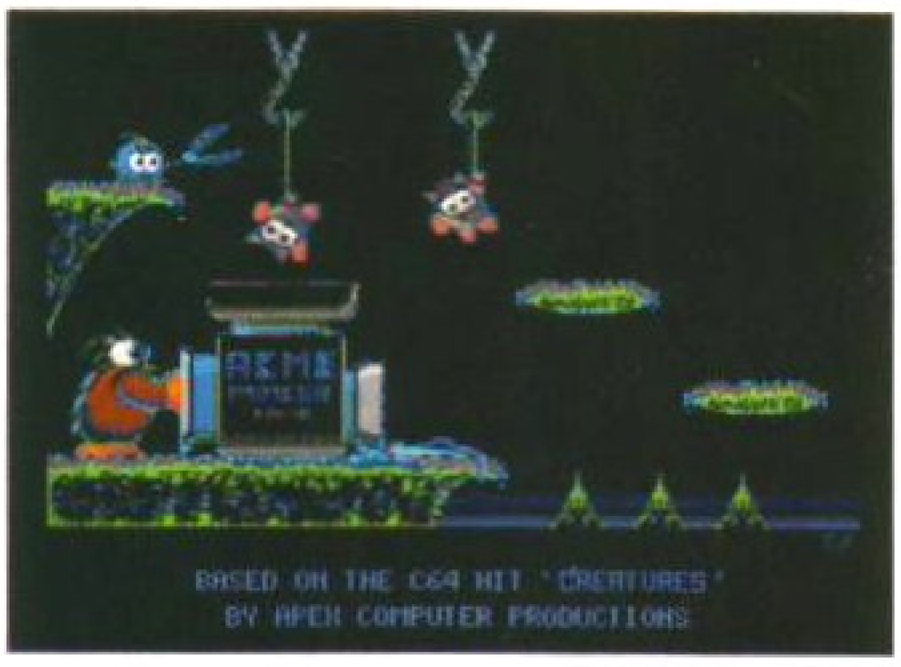


Anyone interested in collecting public domain demos will have heard of Eric Schwartz. Here we have some more collections of his off-beat cartoons, ranging from the near-famous *Aerotoons* featuring comic-book jets in amusing antics, to more unusual anims such as *Juggette II* and *Latenight*.

Juggette continues the adventures of the sexy, robotic juggler herself, while *Latenight* is a sombre tale of insomnia.

MORE CLASSY ANIMATIONS 2

NBS DISK D590





Yes! Here we have some more of Steve's weird animations featuring that cartoon hero: Chuck! The clips range from Chuck taking a roll in his own version of *Top Gun* to a cutesy animation based on the C64 game *Creatures*.

I wonder if it will ever come out on the Amiga? If this animation is anything to go by it should look good anyway!

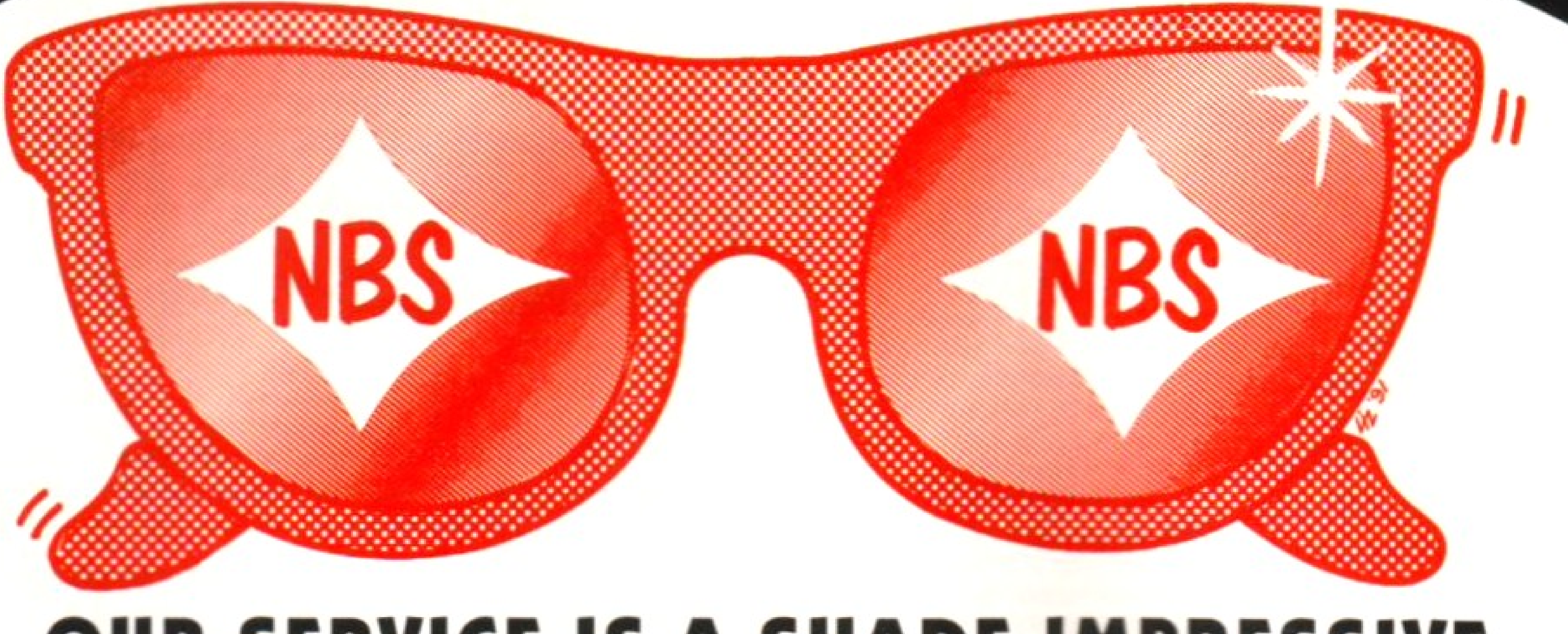
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THESE DEMOS ARE RECOMMENDED FOR ANYONE NEW TO PD

D 146 RSI MEGADEMO. One of the best ever demo disks (2 DISKS)
D 153 PUGGS IN SPACE. A brilliant cartoon demo, yet to be bettered.
D 180 SCOOPEX MENTAL HANGOVER Brill Music and graphics
D 186 COMA DEMO. Flashy acid demo, together with more great demos *
D 190 RSI CEBIT DEMO. Terrific demo, with the best ever music *
D 033 TOMSOFT TRIP TO MARS. Vector graphics with a theme *
D 091 FILLET THE FISH Similar to PUGGS, but not as good, still brill.
D 315 UNREAL DEMO A game demo to show off some great graphics.
X 110 FRAXION HORROR Great cartoon graphic demo of nasty stuff.
M 005 MAHONEY & KAKTUS Brilliant music disk
M 030 DIGITAL CONCERT 2: Over 12 mins of mixed house music.
M 070 CRUSADERS BACTERIA Stunning sound and graphics.
M 170 NEWTRONS MUSIC DISK 'HEADBANGER' You will not believe this!!
G 107 STAR TREK GAME Good graphic adventure, Best with 1 meg (2 disks)
G 109 BLIZZARD Good horizontal Shoot 'em Up.
G 133 PD GAMES COMPO Good selection inc Welltrix and Breakout.
G 136 DRIP Very tricky painter type game. Almost commercial quality!
G 137 THE TURN and TRICKY A couple of good puzzle games by Peter Handel.
G 138 MARBLE SLIDE A cross between Pipemania and sliding blocks. Great!!
U 220 SID A good utility to take the hard work out of CLI.
U 222 NBS SPEEDBENCH A faster loading workbench, plus some handy utilities.
U 225 AMIBASE A good database. Start a disk catalogue now.
U 226 RAZOR TOOLDISK A comprehensive set of mixed utilities, inc Virus Killers, copier, disc fixers. Not all for novices!
U 233 UEDIT Good Public Domain Wordprocessor.

*** Compilation disks which contain other demos requiring 1 Meg of memory.**

DEMOS

D 225 HORIZON MEGADEMO (1 MEG)...Includes best ray traced anim ever?
D 245 THE SIMPSONS DEMO....Probably popular but it's rubbish!!
D 257/8 TSB MAXIMUM OVERDRIVE (2 DISKS, 1 MEG) Brill megademo animation
D 433/4 JIMI HENDRIX SLIDES... Great show of the 60s rock legend.
D 570/1 TRON ANIMATION (1 MEG 2 DISKS) Great anim based upon the film
D 576 IRAQ DEMO...Amusing animation of what might have been.
D 584 FANTAVISION DEMO (1 MEG) Very impressive demo, loadsa animations
D 586 DISCOVERY SHUTTLE ANIMATION (1 MEG).. Brilliant anim and sound
D 590 MORE CLASSY ANIMS 2 (1 MEG).... Steve Packer's brilliant animations
D 597 MORE CLASSY ANIMS 3 (1 MEG)...and even more of the same
D 600/1 HORROR ANIMS (1 MEG, 2 DISKS, 2 DRIVES) Brazzils evil stuff, good
D 602/3 ROLLERBALL (1 MEG, 2 DISKS, 2 DRIVES) Anims from Brazzil Atkins

MUSIC

M 200/1/2 SAE AMAZING TUNES (3 DISKS 1 MEG) ... Superb! showstopper.
M 231 CRUSADERS DOES GENESIS (1 MEG).... Brill, fab, great, GET IT!!!!
M 247 NNN NINETEEN... Great re-mix digi from Tankard.
M 249 AXIS SOUND DISK...Brilliant selector for this chip music disk
M 257/8 SILENTS BLUE HOUSE (2 DISKS) Fantastic music/game disk. GET IT
M 268 IRON MAIDEN....2 Good Amiga-ised Maiden songs. Weel done.

UTILITIES

U 103 MASTER VIRUS KILLER...New improved version. Now recognises 124
U 267 ELECTROCAD DEMO (1 MEG) Ciruit diagram design tool. No save in demo
U 283 SLIDESHOW CONSTRUCTION KIT...Put your digi piccy in a slideshow.
U 298 GOLF SCORE...A useful score analyser for real or computer golf
U 603 ESSENTIAL UTILITIES...10 utilities put together to help with our 'make your own compilation' article in Update 6 magazine. Inc. SID, Powerpacker, Boot Utils, Virus Expert and 2 Copiers.
U 605/6 DATABASE COLLECTION...2 disks packed with database utilities
U 607/8/9 DESKBENCH COLLECTION...Attractive workbench alternative.
U 313 to U 320 CLIPART DISKS......Previously sold by others as a 20 disk set! Same contents, but with NBS the disks are not only one third full!!

GAMES

G 152 PD GAMES COMP 9...Battlemech, Bullrun (Battle Sim) and more
G 160 VIDEO TENNIS (1 MEG) Recreation of the original TV Games.
G 161 STAR TREK NEXT GENERATION Don't buy this disk, it's very poor.
G 162 SPACE POKER (use w/b) Great poker slot machine sim by P Handel.
G 163 RINGS OF ZON Super graphic adventure (monitor recommended)
G 166 NBS GAMES COMPO.1 10 good NEW PD games, inc Missile Command.
G 199 SEVEN TILES The PD game you must have in your collection

LATEST TEXT MAGAZINES

T 021 FORTH DIMENSION 5, T 022 ZINE 8, T 023 CRACKERS JOURNAL 23, T 024 DISC 6, T 025 SENTINAL 2.

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We now hold all fish disks up to 450. The FISH AQUARIUM catalogue has been updated to include all the new disks. Although most of the programs are technical there are some great games and animations hidden away, we thoroughly recommend looking through the catalogue disk. We have all T-BAG disks up to 46.

GLAMOUR DISKS: We have an excellent collection of over 50 disks, demos and slides. Please remember you have to include a signed statement saying you are 18 or over to obtain these disks.

AMOS

Please note all AMOS PD is £1.50 per disk. This is a selected list of the very best of the new AMOS Public Domain. All disks DO NOT require AMOS to run!!!

A 100 (DEMO) Amos Demo 2
A 102 (GAME) Chainsaw Death (1 MEG)
A 103/4 (GAME) Pick Up A Puzzle (2 DISKS 1 MEG)
A 105/6 (GAME) Picture It (2 DISKS, 1 MEG)
A 109 (DEMO) Birds of Prey Picture Show
A 110 (GAME) Cross Fire (1 MEG)
A 115 (GAME) Balloonacy (1 MEG)
A 123 (GAME) Deadline (1 MEG)
A 124 (DEMO) Bob Maniacs by Syntex
A 130 (GAME) The Wooden Ball (1 MEG)
A 131 (DEMO) Armageddon Demo by Syntex (1 MEG)
A 132 (UTIL) FAMILY HISTORY DATABSE (1 MEG)
A 137 (GAME) Tile Trail
A 135 (EDUC) Simon and Space Maths
A 143 (DEMO) CYbernetics Demo (1 meg)
A 146 (GAME) Fruit Machine & Fruit Crush

AMOS LICENSEWARE
All disks cost £3.50, which includes contribution to the programmer.

L 001 (ART)* Colouring Book (1 MEG)
L 002 (EDUC)* Arc Angels Maths (1 MEG)
L 004 (GAME)* Thingamajig (1 MEG)
L 005 (GAME)* Jungle Bungle (1 MEG)
L 006 (GAME) Pukado (1 MEG)
L 007 (GAME) 4 Way Lynx (1 MEG)
L 008 (EDUC)* Work and Play (1 MEG)
L 009 (PROG) Amos Assembler
L 010 (EDUC)* The Word Factory (1 MEG)
L 011 (GAME) Go-Getter (1 MEG)
L 012 (GAME) Hypnotic Land (1 MEG)
L 013 (GAME) Jigmania (1 MEG)
L 014 (EDUC)* Play It Safe (1 MEG)
L 015 (GAME)* Shapes and Colours (1 MEG)
L 016 (GAME) Reversi 2 (1 MEG)
L 017 (GAME) Dogfight (1 MEG)
L 018 (GAME) Touchstone (1 MEG)

ALL DISKS MARKED * ARE PRIMARILY WRITTEN FOR CHILDREN

L 501 LC10 Fonts (NBS LICENSEWARE)

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1018:	THINKAHEAD. A truly mind-boggling game from the Clones	£2.00
1021:	AT THE MOVIES. This is another good 1 Meg animation.	£1.50
1026:	STAR TREK MEGADEMO. By Tobias Richter. (2 Disks - 1 Meg)	£3.00
1029:	ANIMATION DISK NUMBER 37 from Tobias Richter. (1 Meg)	£1.50
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988:	MOD PROCESSOR V1.8 by Steve Marshall. New additions include execute modules and or pics - adjustable picture height/width etc. Will load PP crunched modules as well! An excellent utility.	£3.00
990:	C MANUAL V2 from the Amiga C Club is packed with help/advice with samples of C code etc. Now auto-booting. (On 4 disks)	£6.00

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560 Robocop 3 demo
627 Iron Maiden Slideshow
632 Scarecrow
634 Adam's Family demo*
596 Rebel's Candy Land 2
549 Rebel's Megablast
588 Slabby Music
582 Pink Floyd D1/D2
554 MC Hammer
574 Pet Shop Boys Maniacs

ANIMATION/SLIDESHOW
199 BATMAN animation
465 Bruce Lee
279 Computer Films
497 Creepshow
494 Fillet Fish
498 Ghost Pool *
289 INDIANA Jones *
444 Madonna Animation
366 Porky Pig
479 Ugly Mug
495 Showbiz
360 Neighbours Slideshow
350 Star Wars II*
180 Mike Tyson
464 Roadrunner Cartoon
646 Iraq Demo
647 Turtles Slideshow Vol 2
561 Gulf Slideshow
533 Madonna + Friends Slideshow
480 Stealthy Two
621 Garfield Slideshow
518 Joker Slideshow

MUSIC DEMOS
449 Do the Bartman
337 Erasure Mix
336 Kylie Made in Heaven
338 Madonna Hanky Spankey
211 Freddy Kruger Rap
108 Heavy Metal
361 Betty Boo
501 Laurel and Hardy D1
502 Laurel and Hardy D2
459 Money For Nothing
508 Madonna Rescues Me
517 Genesis Land of Confusion
521 Groove In The Heart
511 Pump Up The Jam
509 Suicidal Blonde D1/D2
534 Bartman Music with anim D1/D2
598 Time Travellers Music
546 Black Betty
291 New Music Volume 1
512 Hi-fi
539 Black Box D1/D2
547 Crusaders Sweet Music
179 Crusders Bacteria
368 Crusaders Freak Out
434 Crusaders Hot-wired
164 Crusaders Tunes
315 Crusaders Audio-X

UTILITIES
362 57 Utilities
469 Action Movie Maker
359 C64 Emulator
532 Spectrum Emulator
506 ST Emulator
377 Graphics Management Vol 1
428 Midi Tool Kit
448 Reaper Copier
405 Sample Scanner
503 Disk Magazine Designer
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559 Dope Intro Maker
578 Sid Workbench 1.06
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580 Quickbase/Mail Management
112 Soundtrackers Programme
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68 Word Pro Plus
631 Electric Train Set
558 Tetra Copy
426 Pumpy Copier
277 Zero Virus Free
592 T.V Graphics/Fonts
411 I.S.S Clip art
624 Cryptic Utilities 17
536 Jazz Bench
170 Perfect Sound
425 Drive Select
373 Sound Applications Vol 1
485 Database/Spreadsheet
482 Simple Accounts
537 Rotate 3D
599 Dark Side Utilities

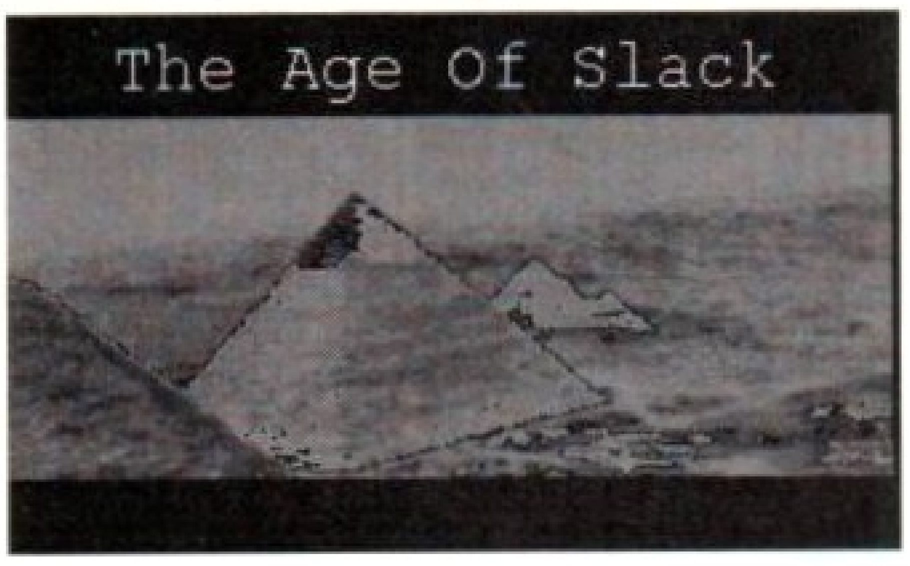
GAMES/PRODUCT DEMOS
452 Bart Simpson Game
001 Dungeon Master 3*
41 Kick Off 3
490 Break Out Construction Kit
492 Pacman
493 Quiz Master
649 Wheels of Fortune
647 CLS Games Vol 1
446 Middle East Mania
254 Monopoly/Cluedo and other
290 Psuedo Cop
457 Star Trek US Version D1/D2
638 Xenon 3
615 Eat Mine
605 Frantic Freddy
604 Castle of Doom
602 Computer Conflict
601 Agatron Games
471 Werner
367 Weltrix Game
478 Tennis*

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THE AGE OF SLACK

CRAZY JOE'S PD DISK 1480
1 MEG REQUIRED

This is a strange demo put together by coding team Black Dog Productions. The disk features tourist-type scenes and religious artifacts from ancient Egypt, but seen from a rather different point of view. The diverse combination of strange fades, surreal wipes and somewhat psychedelic colour palettes add an intriguing new quality to the majestic desert architecture.

The result is quite a bit more interesting than your standard Thomas Cook or Lunn Poly ('get away') brochure shots of sand, sun and more sand. In fact for any wild-eyed trip out fans that check the disk out may have their whole perspective of sunny desert holidays completely changed for ever!

CHARLES DANCE MUSIC

PD SOFT DISK 1348

In yet another collection of dance beats, Charles Meyer places two new crazy tracks on a disk alongside the already released '71Hz Overload'. The new songs, 'Zaphod Access 3721' and 'Terror at Cyclo 221' combine heavy drum breaks and wild acid riffs to produce some great music which rivals some of the recent club hits.This groove is a definite choice for serious ravers everywhere.

ARNIE 'TOTAL' DEMOS

17 BIT DISKS 868, 869, 970, 871

Each of these disks contains a lengthy sample which is loaded from disk as it plays. Listeners of *Steve Wright's Radio Show* will know these clips which feature spoofs on *Total Recall* with Arnie using his violent persona in various situations, such as appearing in court, having his hair styled or getting his car resprayed.

Now you can listen to all the sketches without having to listen to Radio One all the time!

MYSTERONS SOUNDS DISK

17 BIT DISK 885

Not so much of an Amiga demo as a demo in humour. The disk makes a departure from the usual flying BOBs, cycling, copper backgrounds, scrolly messages and Soundtracker tunes usually found in PD Demos and plumps for a disk containing some well sampled noises and effects. These range from standard bangs, pings and electro-noises to some more ridiculous boings and whoops.

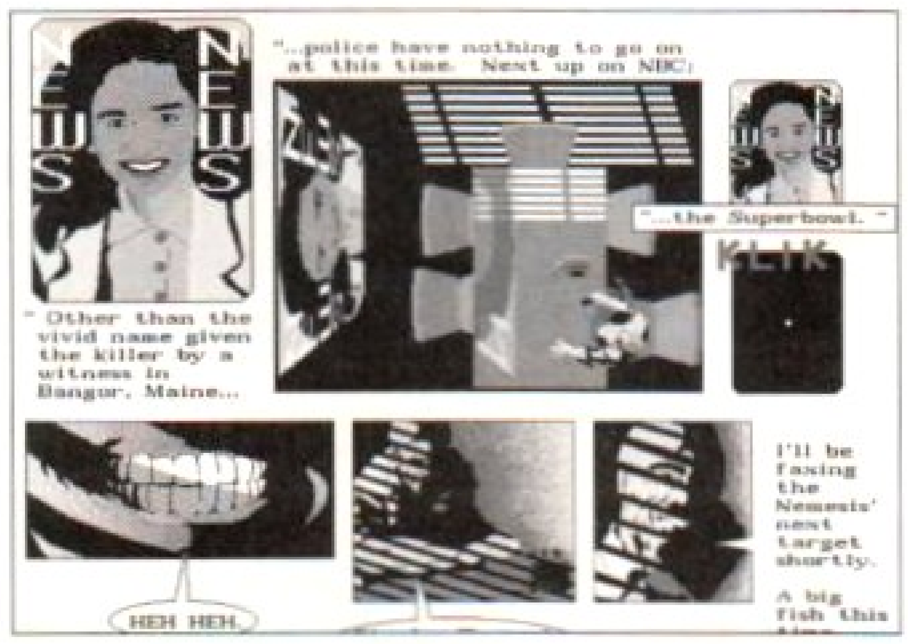
The player appears courtesy of Peter Norman, the man behind the superb Audiomaster and Audio Engineer sampling systems. What the hell is Elvira doing here though?

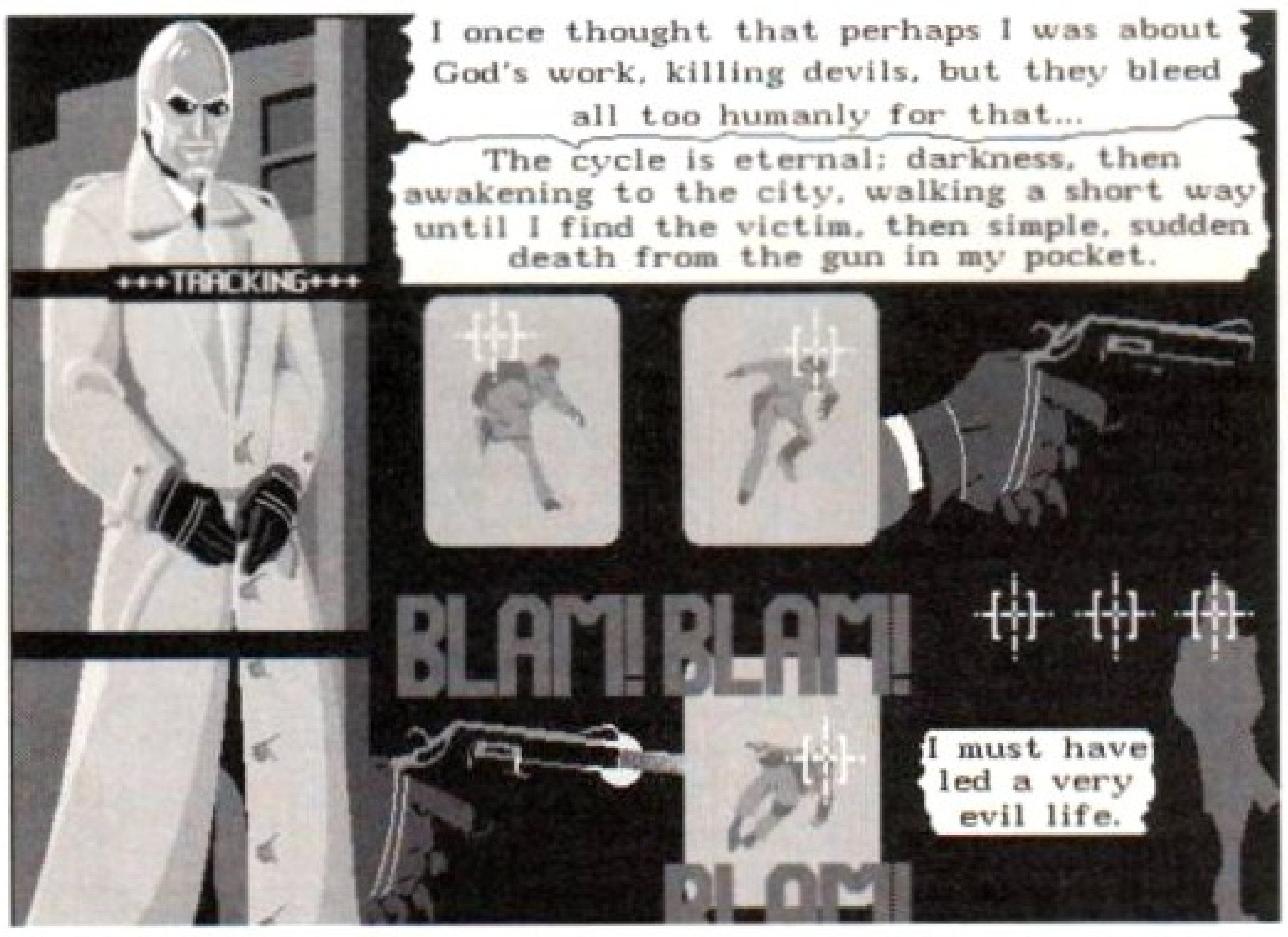


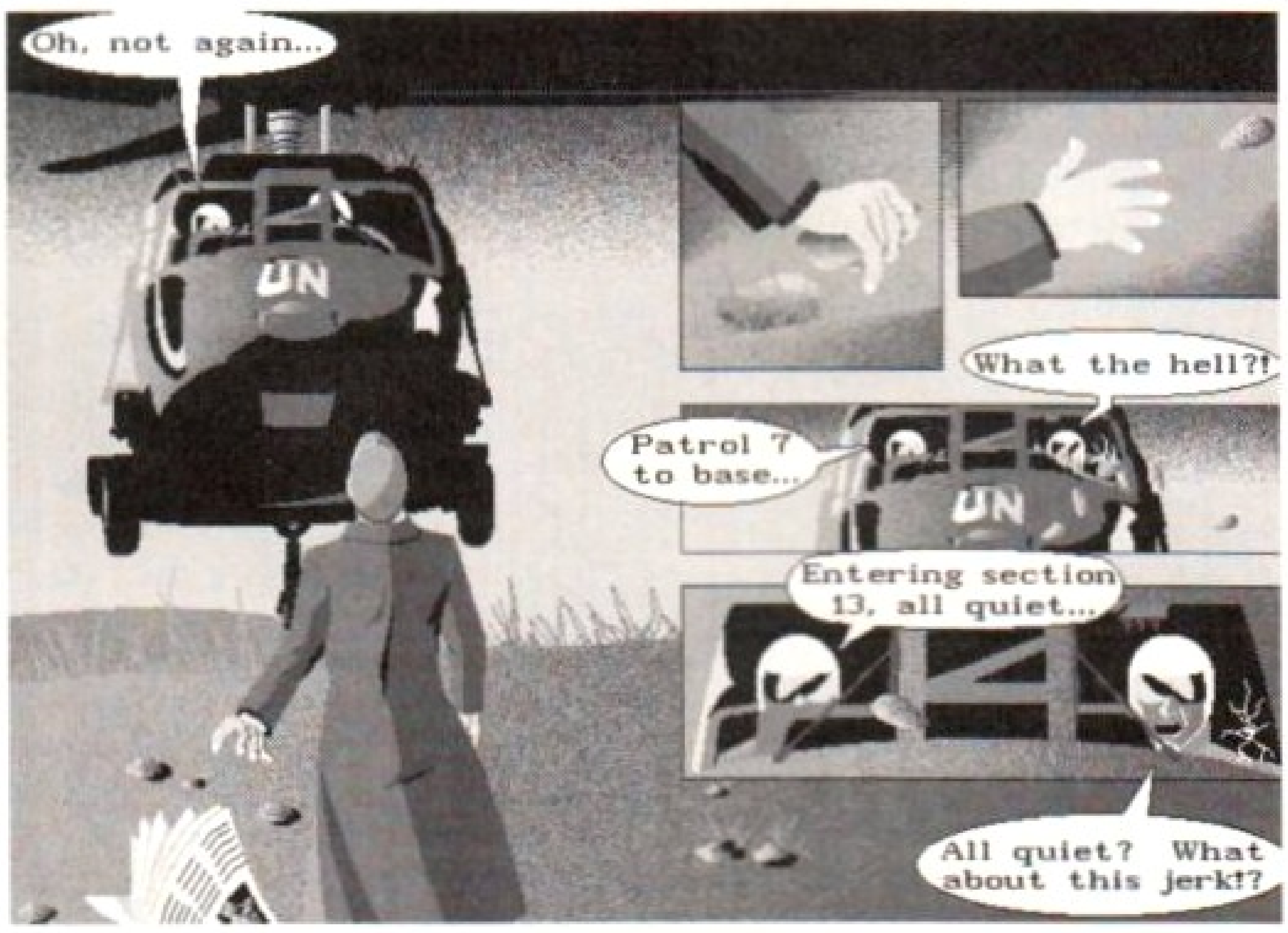
NEMESIS – COMIC ON A DISK

CRAZY JOE'S PD PROLOGUE – DISK 1272 CHAPTER ONE – DISKS 1475 (A AND B) ONE MEG REQUIRED

All you one Meg users are in for a real treat with this one. How many times have you got hold of PD comic demos only to be disappointed with the sketchily drawn graphics, the crap, unfunny gags and lewd picture? Well now those days have gone! *Nemesis* is a superbly designed 2000 AD-style comic strip which blends various influences, including Terminator, the classic sci-fi film *The Terminal Man* and the Max Headroom movie to create a powerful, futuristic science-fiction story with superbly drawn, ominous visuals and a stirring, moody soundtrack. For all serious science-fiction aficionados, Cyberpunk fans and comic-collectors this is an absolute must!







TOP TEN DEMOS

17 BIT PD LIBRARY

Demo	Disk
1. Applecus Animation	911
2. Phenomenal Phenomena	913
3. Games Galore 3	829
4. Robocop Animation	902
5. Games Galore 5	837
6. Anarchy System Violation	862
7. Simpsons Demo	879
8. Acme Megademo	874
9. Madonna Demo	880
10. Amazing Tunes 2	842 843 844

CONTACT LIST:

Amiganuts United – 169 Dale Valley Road, Hollybrook, Southampton SO1 6QX. Tel: 0703 785680

Crazy Joe's PD – 145 Effingham Street, Rotherham, South Yorkshire S65 1BL. Tel: 0709 829286

NBS – 132 Gunville Road, Newport, Isle of Wight PO30 5LH. Tel: 0983 529594

PD Soft – 1 Bryant Avenue, Southend-on-Sea, Essex SS1 2YD. Tel: 0702 466933

Senlac Software – 14 Oaklea Close, Old Roar Road, St. Leonards-on-Sea, East Sussex TN37 7HB. Tel: 0424 753070

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AG.02 Various; Gravwars, Jackland, Paman, Othello, Empire, Hanoi...
AG.03 Star Trek (Agatron); Strategy game by Tobias Richter, Germany's No. 1 Trekker! English version (2D-2 disks)
AG.04 Monopoly; full version of the classic property trading game!
AG.05 Pacman 87; Multi level version of this addictive arcade classic
AG.06 Various; Cosmoroids, Amoeba, Crazy Eights, Blackjack, Backgammon, Daleks, Yahtzee, Stone Age, Ratmaze, Klondike, Keno...
AG.07 Board and Card games; Cluedo, Othello, Klondike and Cribbage
AG.09 Puzzle Maker; jigsaw puzzles from IFF files. Plus puzzle pro
AG.10 Space Invaders: Arcade classic version! Plus: Lander, Amoeba...
AG.11 Tennis; excellent shareware sports simulation. (MB)
AG.14 Flascheiber; Boulderdash style game. Almost commercial quality!
AG.15 Paranoid game; Arkanoid style, including a screen designer
AG.16 Castle of Doom; Adventure game with graphics - beginners level
AG.17 ST Bash; superb Space Invaders inspired shoot-em-up where the aliens are Atari ST related sprites!
AG.18 Golden Fleece; Superb Infocom standard adventure. Train; design a railway with 2 trains! Tron; 2 player light cycle game. Plus: Star Fleet, Kamikaze Chess, Tumbling Tots...
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G.26 Zerg; Ultima style role play. Plus: World; Infocom type adventure. Daleks, Callisto, Puzz, Pontoon...
G.27 Star Trek (USA); Space strategy game. Captain the USS Enterprise and repel Klingon attacks! (2D-MB-2 disks)
G.28 Quattro; Tetris 'style. China Challenge; Mah Jong based puzzle game breaker; Breakout style with screen designer. Plus Asteroids version...
G.29 Chess; Superb multi featured version with variable level of play. Tiles; unusual Shanghai version. Battleships; great implementation of the classic pencil and paper game. Tetris Two; 2 player puzzle game

AH. HELP!

AH.01 Adventure Game Solutions; More than 100 including: Dungeon Master, Future Wars, Ultima I to 5, Sierra, Infocom, Bards Tale, Zak MacKracken, Maniac Mansion, Rainbird...Every adventure players dream! (2 disks)

AU. UTILITIES

AU.01 Jazzbench; Workbench upgrade with many indispensable features! Includes: show hidden files, show as text, show devices, alphabetise...
AU.02 UEdit; Excellent file editor, a vast improvement on Ed!
AU.03 QL Emulator; plus 2 data disks packed with files. Superb! (3 disks)
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AU.08 Various; Starchart: 600 stars & galaxies. TXED: editor/word processor Persmait: personal file manager...
AU.09 Midi Tools: Midi keyboard; five octave, mouse operated keyboard... progchanged; change midi channels etc
AU.10 Graphic Utilities: Fontfixer, IFF convertor, palette convertor... boot utilities: bootext, bootup. Plus: Memcheck, Disksalv, dragpack
AU.11 Starchart; Astronomy program giving positions and movements of all major constellations!
AU.13 Visicalc; Superb full featured spreadsheet with manual on disk
AU.14 Various; Amcat, cataloguing system, Icontype; change icon type, recoverable RAMdisk, spell checker, black book; memo pad. DX synth voice library. Classic Cave adventure.
AU.15 Dope Intro Maker; create demos with this user friendly package
AU.17 D Copy; excellent disk copier, similar to the full priced X Copy, very effective in Nibble mode!
AU.18 North C; complete C environment for the Amiga! Amazing value!
AU.19 SID; Workbench replacement with easy file handling, improved DMouse window control and many more features
AU.20 K.O. The Virus; virus detectors and killers! Includes; Virus x 4.1, Berserker, BBChampion, Red Alert...
AU.21 Avoiding CLI; lots of useful utilities otherwise only obtainable through CLI; FixDisk, QuickCopy, PopDir, DiskOpti...

AC. CLIP ART

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AC.08 Music, people, places, school, religion, symbols, weddings..
AC.09 Signs; titles, logos, headings, sports, athletics, bowling, boxing, cricket, racing, football, fishing, horses, skiing...
AC.10 Teddy Bears; cute pictures - ideal for present labels, greetings cards of just for fun
AC.11 Nightclub, clowns, dancing, vintage cars, bikes, boats, office, computers, industrial...
AC.12 Colour; occasions, transport, signs, electrical, architecture...

SND. SOUNDTRACKER ETC

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STS.02 Longer samples, many from films, Star Wars, 2001, Raiders...

AE. EDUCATIONAL

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AE.02 Spellquiz, Wheel of Fortune, Tug 'o' Word, Flower Garden, Stepping Stones, Maths test, Puppypix (Age 5+)
AE.03 Fractals, Desktop Calculator, Function plotter, Evolution (Age 11+)
AE.04 Gravitywell, Weatherman, Gravsim, Airfoil...(Age 11+)
AE.05 World data bank; CIA world map with political boundaries, view from anywhere, any height! Plus: 3D Plot, Calendar Factory, Sherlock (Age 11+)
AE.06 Talking Spelling Tutor, Speech Toy, German Language Test, Study File Card System, Globe, Elements, Geotime, Text utilities (2 disks) (Age 11+)
AE.07 Educational graphics; Technical illustrations; Art, Biology, Geology Astronomy...some animated like a pumping heart in the Biology section. Includes viewing programs. Or load into Deluxe Paint etc. (Age 9+)

AF. FONTS

AF.01 Cosmopolitan; Rangers, Peignet, Avant Guard, Aldous, Celtic etc...
AF.02 Fancy; Hollywood, Park Avenue, Broadway, Camelot, Courier, Ham...
AF.03 Publishers; Helvetica, Akashi, Andover, Bookman, Boxie, Times...
AF.04 Various; Unusual, videofonts, large and small fonts..Plus: various font utilities etc...

AW. WORKBENCH UTILITIES

AW.03 Icons; Music, RAM, naughty, jet icons. Plus: utilities, colourbench
AW.04 Icon Development; design your own icons with Deluxe Paint! Example icons included. Showpic; slideshow.

AS. SLIDESHOWS

AS.01 Boris Vallejo 1; professional quality graphics in interlaced HAM!
AS.03 Forgotten Realms; 13 digitised pictures with a fantasy theme
AS.05 Exodus Real 3D show; 9 very impressive ray traced pictures
AS.06 Swimsuits; great pictures from the U.S. Sports Illustrated mag.
AS.12 M.C. Escher; Animated slideshow of Eschers paradoxical artwork...
AS.17 Agatron 4; 16 ray traced pics including one of the USS Enterprise that took 38 hours to render!

AD. DEMOS

AD.01 Walker 1; digitised animation of Star Wars Imperial Walker (Mb)
AD.02 Walker 2; digitised animation of Walker and helicopter! (Mb)
AD.04 Probe Sequence; incoming video pictures from an interstellar probe landing on an alien planet! Amazing!
AD.12 Boing Machine; it's Ray Traced, it's incredible, it's impossible...
AD.13 Walking Cat; amazing revolving digitised animation of walking cat!
AD.16 Ghost Pool; stunning animation of a playerless pool game...
AD.18 Puggs in Space; extremely funny cartoon involving an alien creature landing on Earth and exploring!
AD.21 Busy Bee; amazing Sculpt 3D animation of a large flying bee! (Mb)
AD.22 Democreators. Create your own demos with: Bootwriter, Bootmaker, Bootboy, Boot generator, etc...
AD.23 Ship and Sphere; super smooth Ray Traced film of space ship flying round a glass ball. Masterpiece! (Mb)
AD.24 NewTek Demo Reel 3; incredible demo of NewTek range featuring some of the best sampled sounds, digitised pictures and animations you will see anywhere! Stunning!!! (Mb-2 disks)
AD.25 The Run; Outrun style 3D film of a Lotus weaving through motorway traffic with police car chasing (Mb)
AD.26 Starline Mega; smooth hi-res full screen scrolling pics, crystal clear hi-fi sound samples, enormous scrolling text - highly recommended!
AD.28 Stamp Collector; amusing film involving a ghostly magnifying glass examining some naughty stamps!
AD.29 Predators Megademo; brilliant demos including some truly amazing animation and 2 games! (2 disks)
AD.32 Vision Megademo IV; superb digitised music and sound effects plus large graphics. Brilliant!
AD.35 Robert the Mercenary; amusing animation sequence including a game where you can shoot some aliens!
AD.36 Kefren's Megademo VIII; 10 demos including; Kill the Beast (Shadow of the Beast meets Xenon 2), Walkman, Kill Victor, Vectormania..(2 disks)
AD.37 Gymnast Demo; Ray Traced animation of a gymnast performing a high bar routine. Recommended!
AD.39 Agatron Animations; 3D film of the USS Enterprise attacking USS Reliant. Plus walking Robot
AD.40 Luxor Teenager; Variation on this classic involving 2 anglepoise lamps and a large red ball!
AD.41 RGB; Badgekiller competition winner! Produced with Director (Mb)
AD.42 Comic on a Disk; whole graphic novel, page by page, on screen!
AD.44 Laurel and Hardy; Digitised clips from various films! (2 disks)
AD.45 Star Trek, Dry Dock demo; the highly praised Ray Trace masterpiece!
AD.46 Stealthy Manoevre II; cartoon style Stealth Fighter animation.
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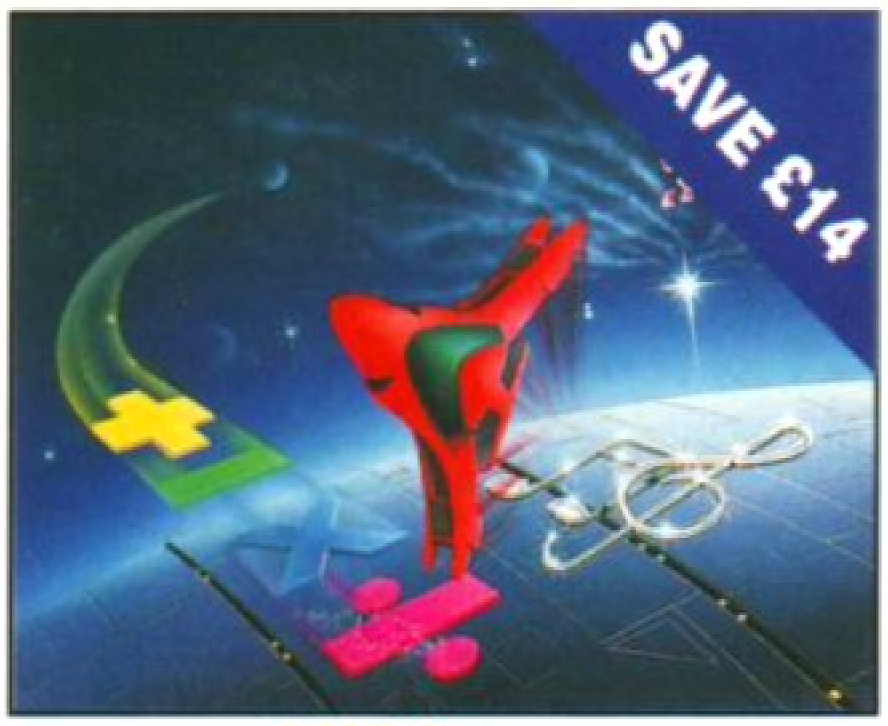
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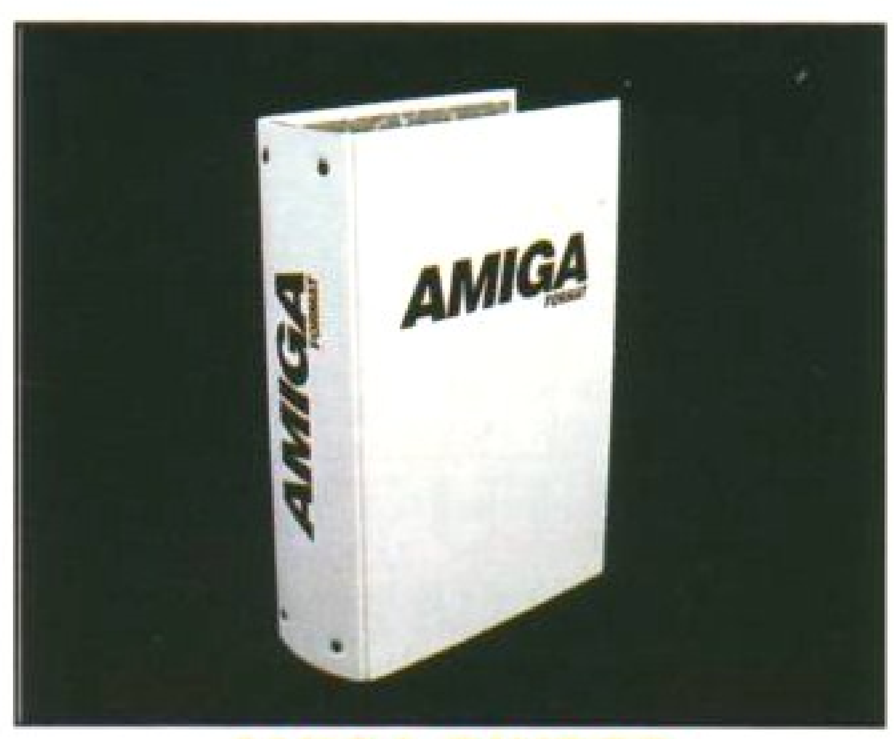
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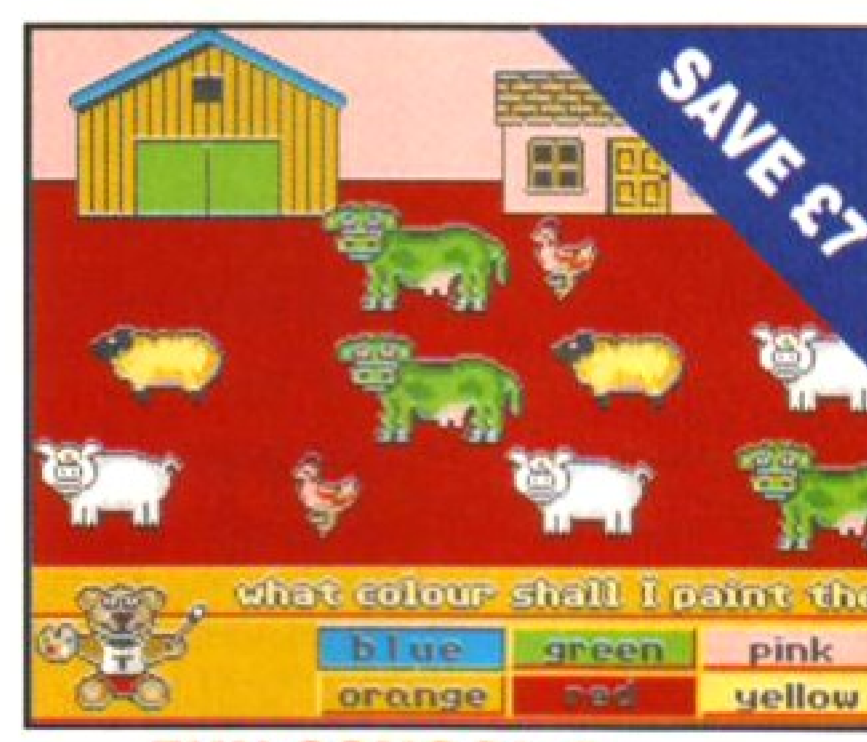
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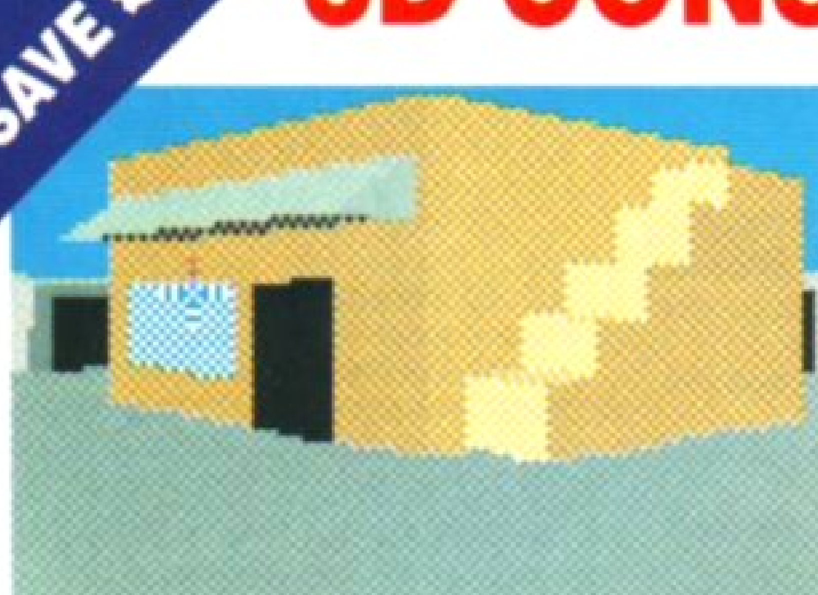
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If you've ever wanted to create your own 3D games but haven't had the programming know-how: if you've ever looked at the Freescape games *(Driller, Total Eclipse, Castle Master)* and turned green with envy: if you've simply wondered how it's all done, then this could be the answer.

Incentive's *3D Construction Kit* gives away all the secrets of their excellent Freescape games system and allows you to make your own games using it. Alternatively, you can just use it to create 3D environments, such as a walk-through model of your home.

A simple system allows you to place 3D objects on the screen and change their size, shape and location. You can set up different actions to happen when the object is 'activated' or shot, you can move between different areas of your 3D world and you can group objects to make complex shapes. See the demo om the Coverdisk and read the feature on Page 33 to find out how great it is!

Description	Price	Order No
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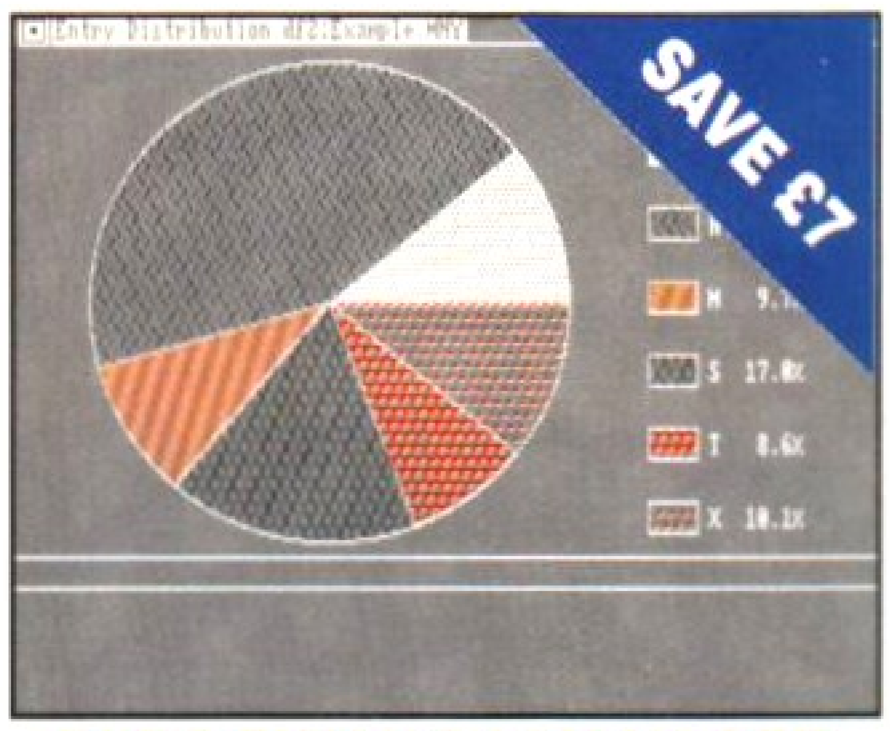
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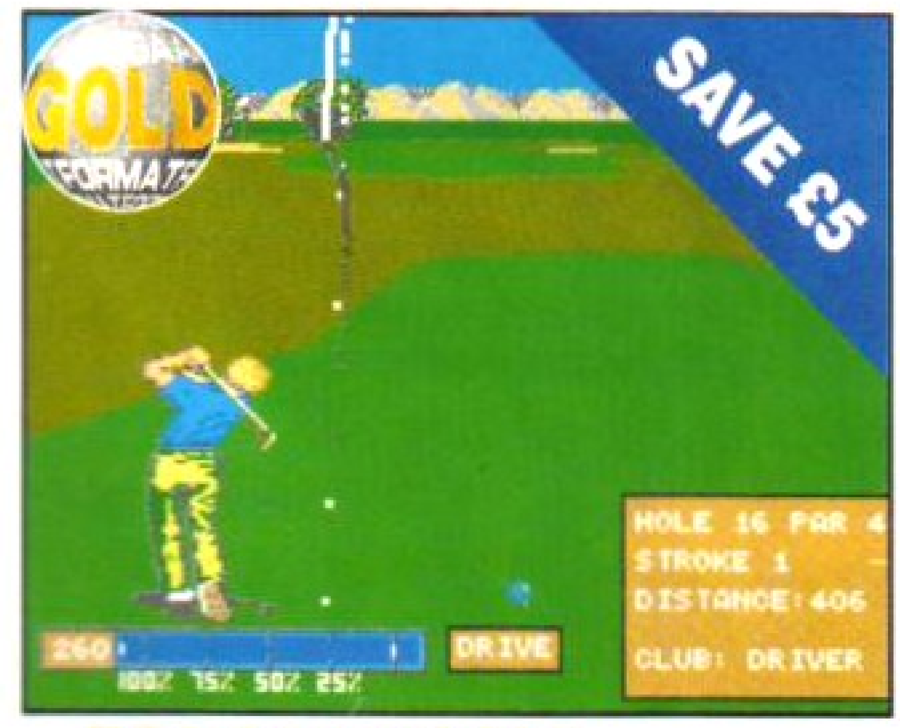
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Psygnosis' latest offering has you maniacally rescuing the dungaree-clad little lemms with a deathwish. There are 120 puzzling levels which will keep you 'Oh no-ing' all year.

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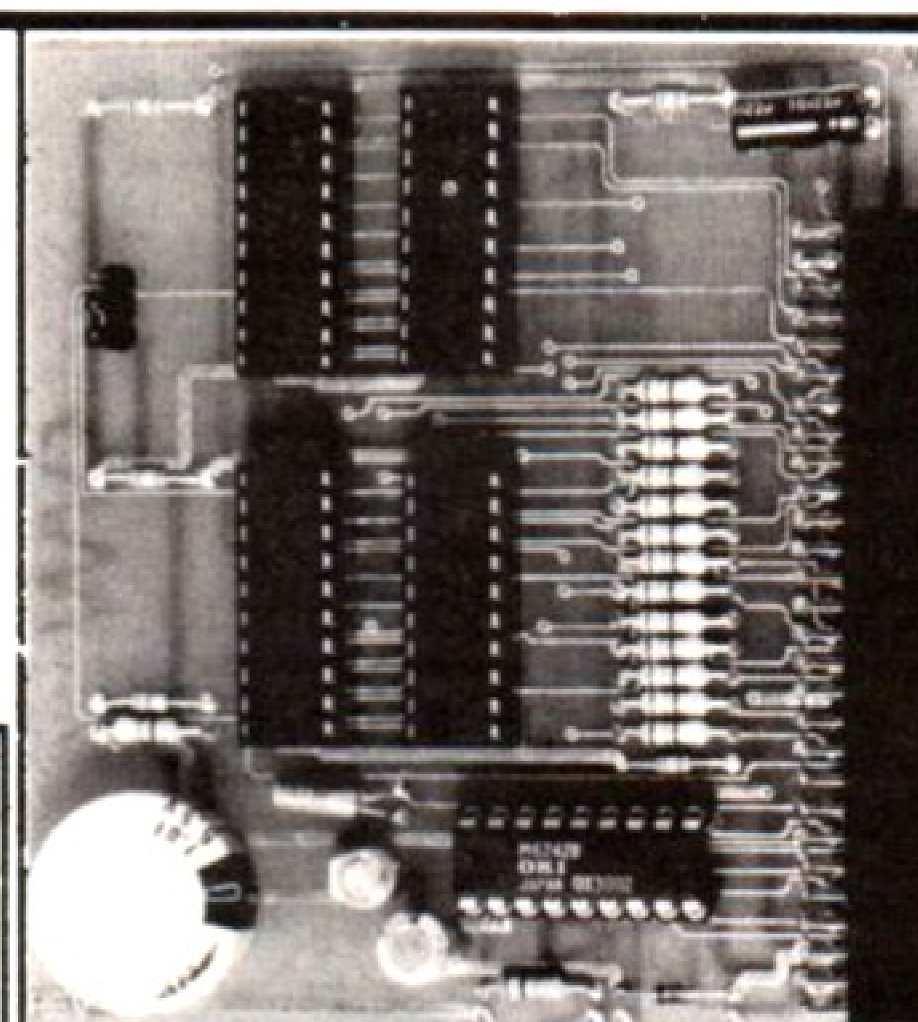
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VISA

Work bench

If you want some serious answers to Amiga questions, this is the place to look. **PAT McDONALD**, take the stand...

DRIVE ON

PRIZE WINNER

Primarily I want to respond to the letter from Ian Moran in *AF*21 and your subsequent reply. I don't know if it will be of any use, but...

I am building up a collection of printer drivers. Anybody who has some different or novel drivers can send them to me. Anybody who needs a driver should send me an SAE and a blank disk – I'll copy my whole collection onto the blank disk and send it back.

Printer drivers that I've got at the minute include Alphacom Alphapro 101, Brother HR 15XL, Canon PJ-1080A, CBM MPS1000, Diablo 630, Diablo Advantage D25, Diablo C-150, Epson, EpsonQ, EpsonXOld, EpsonX [CBM MPS-1250], Epson JX-80, Generic, Howtek Pixelmaster, HP Deskjet, HP Laserjet, HP Laserjet Plus, HP Paintjet, HP Thinkjet, Imagewriter II, NEC Pinwriter, Okidata 292, Okidata 293I, Okidata 92, Okimate 20, Quadram Quadjet, Qume LetterPro 20, Toshiba P351C, Toshiba P351SX, Xerox 4020.

Nigel Streeter, 6 Old Mill Court, Chingwell Road, London E18 1NJ

I wish you every success in your particular brand of mania.

NO CONVERSION

Can you tell me where I can get a copy of a utility that will convert Amiga IFF files to Macintosh PICT (or any other format) files. I have Dos2Dos and access to Apple file exchange, so transferring the data between machines is no problem.

Ben Andrews, Bucks

It's not easy or cheap, I regret. No Mac PD program will do this – at least I couldn't find any in a Mac PD catalogue. There are various commercial programs which convert PCX files to PICT files – but then you need to convert the IFF images to PCX first. The only program that can read straight IFFs from a PC disk on the Macintosh and is available is Adobe PhotoShop, *hideously expensive at about £700.*

LITERATE SHEEP

Once upon a time, not so long ago, I read in a computer magazine about this gadget that you bung in the back of the Amiga with a massive washing-line aerial. It allows you to pick up pictures from weather satellites, and being a wealthy intellectual geography-loving sheep I want one so that I know when to lie down.

Alas I lost the mag. Can you tell me any information about this? Also, I would like an atlas for my computer – can you help there?

Flossy the Super Sheep, Snitterfield

If any radio hams or RTTY enthusiasts know of a company that supplies the various bits and pieces necessary to download satellite information could they please forward the information to me here at Workbench and help the many readers who have asked about this.

MENUMASTER NO MORE

I would like to know how to solve my problem *Amiga Format* Coverdisks 19 and 20. Every time I want to access programs other than the demo (on 19) or any of the programs at all (on 20), up comes a message saying 'Can't open MenuMaster window'. I have tried and tried to access the other programs, but so far I just have not managed to do so.

John S Deg, USA

... AND NO MORE

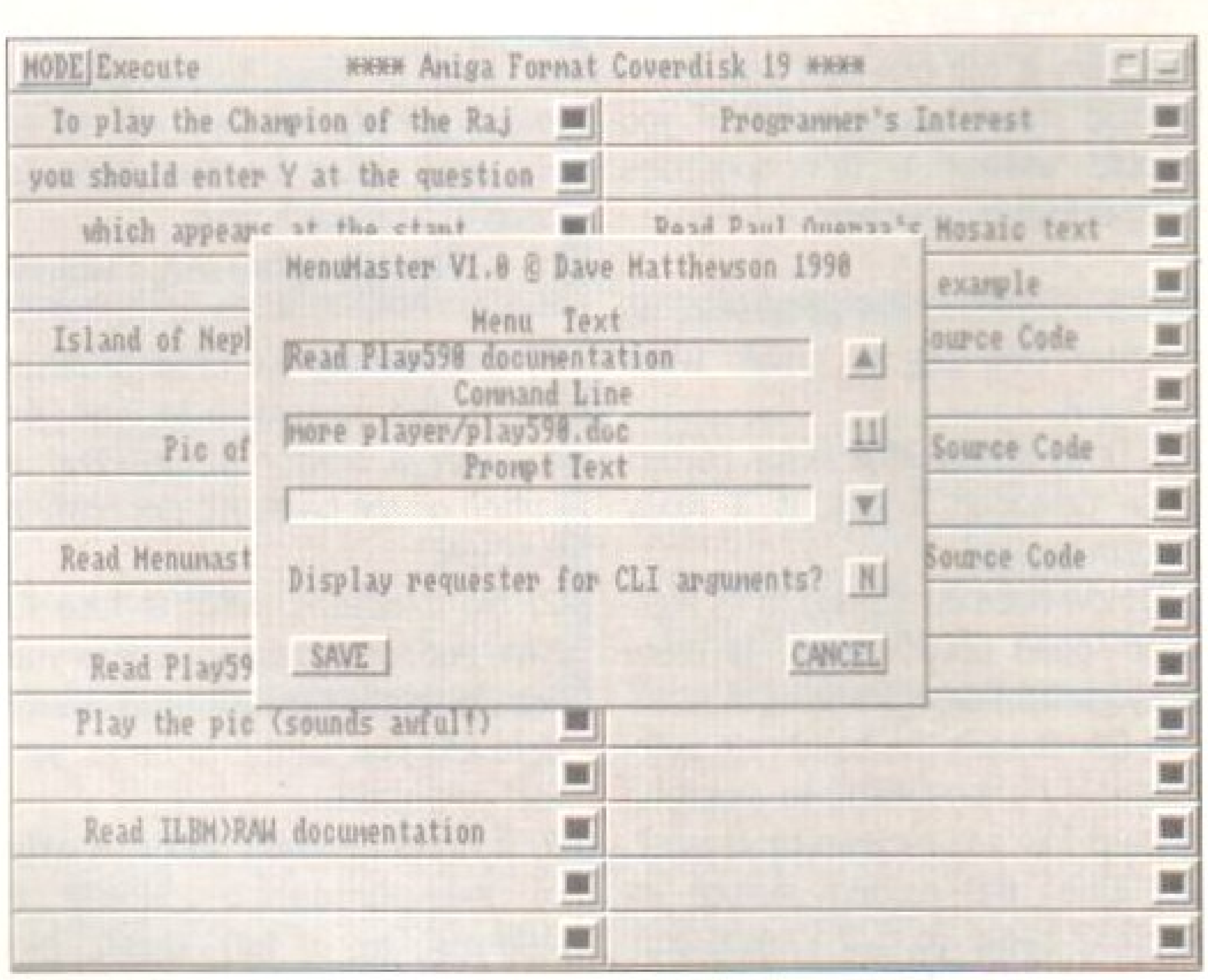
I belong to a small group of Amiga users, with various different machines. We are all agreed to write to you about the *MenuMaster* program that you use on the Coverdisk. It's OK for some of us to copy the programs and get into the disk, but for many people it's very difficult.

Please change back to the icon form of programs, which are at least standardised. They're easier to use for the person who knows just a little bit about Workbench.

Albany Park Amigans, London

MenuMaster has a lot going for it – it's painless to select programs from it. However, because a few people don't get on with it (and it doesn't like NTSC/North American systems one bit) it will not be used any more. Instead the disk will be as Workbench-friendly and as automatic as possible.

American readers please note: if you want to use Coverdisks 19 or 20 then you will have to resort to running the programs through the Shell or CLI from Workbench. Sorry for the situation, and it won't happen again.



MenuMaster was a program that made it fairly easy to use the Coverdisk - but due to compatibility problems it will never be on the disk again

EMULATION

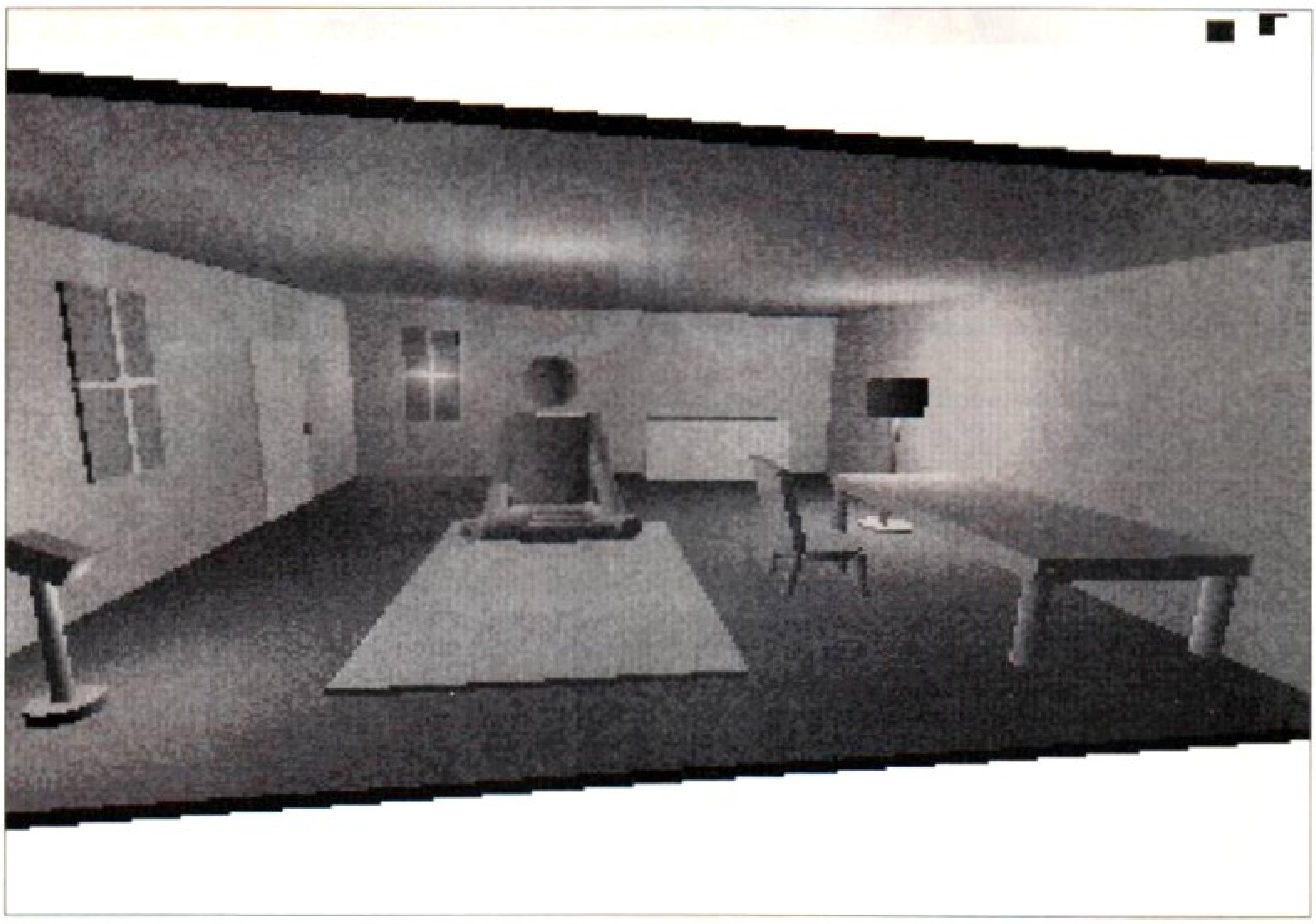
I am a student in the final year of my A Levels, and in October I hope to be going to a university or polytechnic to take a degree in computer science. During the course I will have to write reports on homework and projects etc. All of the institutes have some sort of PCs that students are allowed access to so that they can write on them. Since the Government has cut budgets, there are not always enough computers for all the students to use at once.

It would be an advantage to have my own PC. I already own an A500, printer, memory expansion and external disk drive. I don't want to sell it and buy a PC – such a step could hardly be called upgrading as the Amiga is a far superior computer. If I could use my Amiga at home and the PCs on campus, and swap work between them on floppy disks it would be great. I have heard of PC emulators and read the report on them in *AF* but I am still unsure.

As I understand it there are three hardware PC emulators on the market: Commodore, KCS Bitcon board and the Vortex ATOnce. In your view which is the best one to go for, as far as price,

Continued overleaf ▸

PD Q&A



If any readers have access to the JANET network then they can pull down lots of PD from the National Public Domain Software Archive at Lancaster University. If anyone wants to know how to do this then please write to me with an SAE or mail me on JANET at:

HALSTEAD_GTD@UK.AC.LANCSP.P1

I was very interested in the ElectroCAD program mentioned in AF19's PD column. I am at a polytechnic on an electronics degree, unfortunately I cannot find it listed by any of the PD suppliers so please could you tell me where to find it. What did 'NBS U267' mean?

Incidentally, I personally like the large number of adverts in *AF*. By spending a little effort reading and comparing them, I know where to go for the best price for the latest hardware and software. The more the merrier in my book.

Glenn Halstead, 12 Holstein Street, Deepdale, Preston PR1 1UN

NBS is the name of the supplier for the review copy. The U267 is their code for that particular disk, and at the end of every PD column we put a list of suppliers for programs reviewed within the column. You can contact NBS on 0983 529594.

cost and performance go? Would I need to buy another 5.25-inch disk drive?

Andrew Manning, Manchester

Is it really necessary for you to buy a PC emulator at all ? OK, so then it would be possible for you to run the PC software. If you had MessyDOS or CrossDOS then tl think you would find that would be sufficient – you could word process at university, save the files as ASCII, which can be read by any machine's word processors, bring back the disk and read it on your Amiga.

Alternatively you could write the data on your Amiga and then take it in to university to print out. You would only need to buy a 5.25-inch drive if that was the size of disks used by the PC – nowadays 3.5-inch is becoming the standard sized disk.

SM2400 FACTS

In *AF19* in the 'advice' column, you stated that the Amstrad SM2400 modem is the one that you use. I would much appreciate it if you could answer a few questions regarding this modem:

1) Do you have any problems, no matter how big or small, when using it?
2) Does it have MNP error correction protocol? If not, is it really worth having?
3) How does it respond to its highest speed (2400 baud)? Is there any garbled data creeping in?
4) Can it seek the baud rate automatically when dialling to a bulletin board with an unknown baud rate?
5) Does this modem include an RS232 cable so that I could connect it to my Amiga's serial port without any difficulty?

The reason I would like to know is I am deaf and want to be able to communicate with all my deaf friends over the telephone, as they all have terminals. This would greatly improve my social life as I would be then able to keep in touch with them.

Tim Humpherson, Pwllheli

1) *Occasionally we need to reset it – it dies from time to time. As it's only a matter of pressing a button on the back, it's not really a problem.*
2) *No it doesn't. MNP is nice to have but not necessary unless you are downloading vast amounts of data and you want it to be as perfect as possible.*
3) *It really depends on the quality of the phone line. Mostly it behaves fine at any speed, but sometimes it just transmits garbage due to a bad connection.*
4) *Yes. No trouble*
5) *Usually it does – it's best to check with the company that actually sells you the modem, and insist on a ready-made cable as they are a pain to make or to have made for you.*

WHICH ...?

I have been thinking long and hard about buying a hard drive for my A500. I can only afford one in the £250-£350 price bracket. It would be used to put my games on and a word processor etc. Could you tell me whether it would it be capable of holding all of the games that I have on my Amiga? Or would it just be a waste of money buying it? If you do recommend that I buy one would you please recommend the specific model that I buy and a contact as to where I can obtain it from.

Lastly I tried the tip that was given by Mr Beale to stick a two-inch piece of sticky tape across the top of the screen so that any Guru messages are invisible. It was fine up until I tried to get it off, I couldn't.

Robert Cole, Rugby

Buying a hard drive just to put games on is not a good idea. Unless a game tells you exactly how to copy itself onto a hard drive in the instructions, then it probably won't without a lot of specialised knowledge. It's far better to use a hard drive as a big Workbench disk – one that you can store programs on that are compatible with Workbench.

I'm intrigued by your reference to 'word processor etc', as that's probably the best way to really use a hard drive. So I myself would recommend not buying a hard drive until you use a program a lot and want to store data from it in a big way – like a paint program if you're an artist, word processor if you're a writer or a music program if you like composing. You could put two different programs of each type on a hard drive, and still have oodles of space for your creations.

As for what you can store on a hard drive, it depends on how much of the floppy disk(s) each game uses. A full disk contains 880K of information, but not all of that will need to be copied to the hard disk. Expect about 20-30 games to fit onto a 20 Mb hard drive, assuming that most of them come on only one disk.

NOTEPAD HINT

Have you ever wanted to alter more than one menu option selected as default when you run Notepad? The way shown in the

Continued on Page 205 ▸

manual will only work for one option but I have managed to discover a way to select two or more options. This is achieved by clicking once on the *Notepad* icon and selecting 'Info' from the 'Workbench menu'. At the bottom of the window that appears is a string gadget (a box containing text) called TOOL TYPES. Click on the ADD icon beside it and type:

```
FLAGS= <option1>|<option2>
```

For example, if you want draft and form feeds selected then you would type:

```
FLAGS=draft|formfeed
```

Then click on the SAVE button. The '|' character is known as the pipe symbol, and is a shifted backslash (next to the backspace key at the top right of your keyboard).

Adam Sampson, Sevenoaks

Thanks for the tip. The winning entry of the mini competition to write a stand-alone Notepad script file will be on the next Coverdisk, space permitting.

FONT MANIA

Want some more fonts to use in *Deluxe Paint*? You've already got some! They are on Extras 1.3: Courier, Helvetica, Times and Adobe in a range of sizes. There are more on The Very First, you know the disk you looked at once then put away.

Here's what you do to copy them on to your *DPaint* disk. Boot up with a copy of Workbench, open a shell window and type:-

```
resident c:dir
resident c:copy
```

Replace the Workbench disk with your copy of Extras 1.3 and then try typing:

copy all from df0:fonts to ram:fonts

Repeat this with The Very First disk. Then to copy all the fonts onto your *DPaint* disk, insert that disk and type:

```
copy all from ram:fonts to
df0:fonts
dir df0:fonts
```

This last line will let you check that they have all copied on to the *DPaint* disk. Try checking out other disks in your collection – very often they will contain more.

Fonts are always contained in a directory that is called fonts. I found Arnold Bocklin in 9, 18 and 27 sizes on the *Interphase* disk that came with the Christmas edition of *Amiga Format*.

This has highlighted one small problem with *DPaint II*. The 'fonts menu' will only show a maximum of 15 available fonts – so you will probably end up being very selective over which fonts you load into the program.

Bill Dawson, Southampton, Hants

MANUAL MISPRINT

PRIZE WINNER

In *AF*20 you published a letter titled 'No Can Print' from Mark Perkins of Poole. While you answered the question satisfactorily, I think you missed the heart of the problem which is related to a misprint in the A500 user-manual supplied with the equipment.

On Page 7-20 of the manual it suggests using this command to redirect the output to a file:

```
DIR MyDiskDir > OPT A
```

The letter from Mark had the same syntax, namely:

```
DIR DIRECTLIST > OPT A
```

These both result in an error message from the Amiga because the redirection symbol '>' should be located before the file name, not after it. That is, people should use this command:

```
DIR > DIRECTLIST OPT A
```

This would produce the directory listing in the form of a text file which he can then either edit or print as he wishes using Ed or PrintFiles respectively.

A B 'Sandy' Smith, Bishopton

Thanks for telling everybody about the misprint.

Thanks for the info on copying the fonts onto DPaint. *If you press the right mouse button over the text icon in* DPaint, *and then enter:*

```
DF0:FONTS
```

In the box that is marked drawer, DPaint *will look for any fonts on any disk that you insert whilst in* DPaint. *This should save some hassle for those people who are unfamiliar with the Shell.*

EXPANDING MACHINE

I would like some more memory for my Amiga but I don't know which hard disk to buy. I have an A2000 and a 40MB hard disk with a SCSI controller. If possible should I purchase extra RAM to connect via the hard drive (like on the A590) or is it simply better to purchase something like the Cortex that has a 2MB fitted for £249? If not, could you try and suggest something better for under £300?

I have had experiences with various pieces of software which do not run on a 1MB A500. So will I be likely to encounter any programs which do not like my expanded machine? Also my battery backed-up clock isn't found any more – is it constantly charged or does the battery need replacing sometimes?

Shaun J Nicholson, Camberley

Usually it is best to fit memory in any existing slots before you expand on a separate board. If you can plug memory into the hard drive card then by all means fit it there – another card would be a waste, unless you can't fit any more memory onto your hard drive that is.

EASY SETCLOCK

Regarding the 'Reset the Clock' letter in that you published in *AF*21. There is in fact an easier way of correcting a corrupted clock. In Workbench 1.3 (and possibly earlier releases) there is a software fix.

If your clock has locked up or refuses to hold the correct time, boot up with Workbench, open a Shell or CLI window and type the following command:

```
SETCLOCK RESET
```

This will clear the clock register. Then set the correct time and date, and enter the next command into the Shell or CLI window:

```
SETCLOCK SAVE
```

which will save the current system date and time to the registers in the clock chip.

R Jankowski, Merseyside

Thanks. It works on Workbench 1.2 as well (for a change).

SIMILAR CASE

In response to the letter in *AF*21 from CS Knight relating to his Yamaha PSR keyboard, Sonix and Microdeal Interface not working, I would like to tell you about a similar experience that I had with my equipment.

I too have a 1MB A500, *Deluxe Music*, Yamaha DSR2000 with a Trilogic MIDI interface. When originally connected up this gave no results under any test:

1) I checked all leads and connections – OK.

2) I then checked keyboard at music shop – it worked with their MIDI setup.

3) Replaced interface but still had no results.

4) After checking what was an otherwise perfect A500 I found out that the serial port chip was faulty. Replacing this gave me perfect results.

The lesson I have learned from this is that even though the computer may seem perfect in every way adding new hardware peripherals, to what are previously unused Amiga connectors, can reveal previously unseen Amiga hardware faults.

Take heart, the repair was relatively simple to perform and was quite inexpensive and now the whole system gives me hours of musical pleasure.

Herbert Riddle, Oldham

How very true. I thought one Amiga was perfect until I tried fitting a sound sampler – it wouldn't work because the parallel port chip was blown. So don't trust that everything is all right with your computer until you've tested it.

DTP TRACK

I recently purchased a copy of *PageSetter II*. What a great program it is for desktop publishing. The only thing I couldn't find how to do in the manual was how to alter spacing between individual characters (I believe this is called the tracking).

However during one busy session I found out how to do it. It's very simple – all you do is highlight the text (or select all from the edit menu) and then use the left-and-right cursor keys to adjust the tracking to taste.

Neil Baker, Leicestershire

And there you have it.

Continued overleaf ▸

Workbench Silly Questions

A new section in Workbench, in which we try to answer some of the simpler and more obvious points that can so easily confuse the beginner.

MINIVAC WANTED

I wonder if you can you tell me where I can get hold of a product called Mini Vac? It is a very small vacuum cleaner which is used to collect the dust from inside recesses of computer keyboards. It costs about £9 but I can't find out who supplies it.

Also the eject button of my internal disk drive has broken. Although it is still usable it keeps falling out. Can you tell me who supplies these or do I have to go and buy a new internal disk drive?

Dave Hogben, Middlesex

The MiniVac is made in China. The supplier, I think, is Mabbott and Griffith (0766 771398). I guess the manufacturer of the eject button is also in the Far East, so you' may have to live with it as getting spares for this sort of thing is virtually impossible.

LAZARUS MYSTERY

Has anyone out there heard of a virus called *Lazarus*? One of my disks seems to have been afflicted with it.

The disk was a commercial game which refused to boot one day. Checking it I found the *Lamer Exterminator* virus which I got rid of with a virus killer. The disk still wouldn't boot and was now not a DOS disk.

I ran *DiskDoctor* over the disk, which saw every track as having a hard error, and at some point the name of the disk was changed to *Lazarus*. The disk only showed two blocks in use, which I presume must be the bootblocks. So now I have a very empty disk.

I cannot find any reference to a virus called *Lazarus*, and I have not seen *Lamer* do something as severe as this. Any info would be much appreciated.

Steve Clarke, Kempston

If you destroy the bootblock on a commercial game (to get rid of a virus) then the original bootblock is gone forever. The disk is trashed. Running DiskDoctor *on such a disk will cause* DiskDoctor *to rename the disk as Lazarus – it*

Continued on Page 208

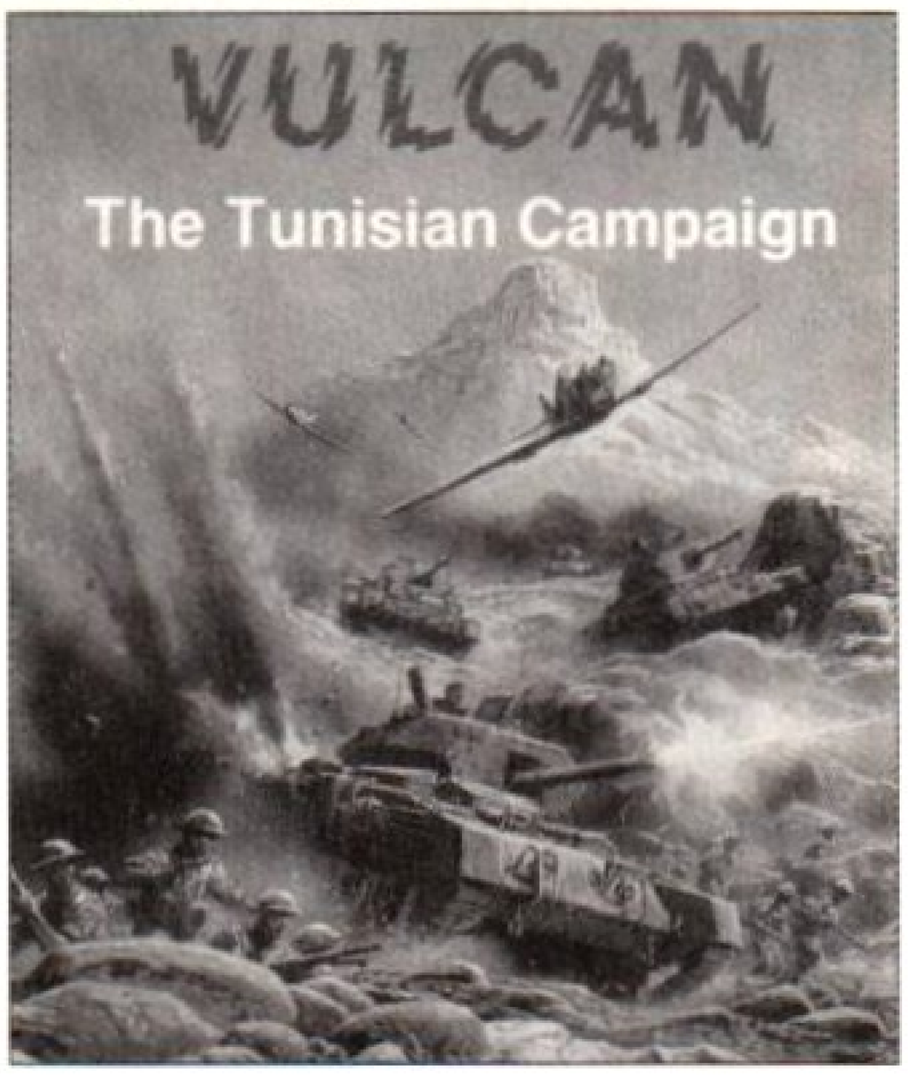
A LITTLE KNOWLEDGE...

I am in two minds about buying an Amiga and here are the reasons why I haven't bought one ...

a) The joystick ports are in a poor position at the back of the machine. (Couldn't they have been put in the front or side?)
b) Sluggish, noisy, unreliable disk drive – can this be replaced with one like the Archimedes which is fast and quiet?
c) The big fat TV modulator sticking out of the back – couldn't it have been built in?
d) Big noisy power supply.
e) Viruses – can't the computer detect and destroy them?

Will any of these design faults be remedied? In comparison with the Archie the Amiga is a shabby piece of technical equipment.

1) What is the latest A500 version in terms of Kickstart and fatter Agnus?
2) Is the Amiga able to take ROM cartridges like the 64? If so, of what memory capacity?
3) Is there an art package where you can design symbols (for a wargame) and transfer them into a game. If not, how would you do this?
4) Why are there not more strategy games like, for example, RT Smith's *Vulcan*? It has super graphics, random play every time and it's complex. Surely strategy games are what computers were made for!



5) Does 512K of RAM mean 512K x 8-bits (if so the Amiga only has 256K x 16-bits, does it not) or does this mean that the machine can carry out two 8-bit instructions at once?
6) Why is there not a computer around that can emulate not only the Amiga but theBBC, 64, and Spectrum?
7) Can't we have a poke to make memory restricted multi-load games (512K) load completely on 1MB machines as this would save on disk wear.
8)Is it possible to use *Music-X* to produce different musical styles ... classical for example?

J Kelly, London

a) I quite agree, the joystick ports are not easy to get at. Of course, redesigning the computer to put them somewhere else would cost quite a tidy sum in retooling and updating old machines – why not just fit a couple of extension leads.
b) The fault lies not in the drive – it's because the Amiga is a multitasking machine that does other things while loading.
c) True the modulator is ugly. Domestic televisions produce an ugly picture though. If you used a monitor you would have a better picture and no unsightly lump hanging from the back. Building the modulator into the computer is a nice idea but is totally pointless really.
d) Noisy? It's nothing compared with what the computer sounds like. The latest power supply is very light as well. But I must admit, it's ugly.
e) Yes, if you run a virus-killing program and behave in a sensible and responsible way with new disks.

It's unlikely that any of the "design faults" as you describe them will be remedied – because they are not really faults. Sure, the A500 is not as easy to work with as an A1500 – because it was designed as a domestic home computer rather than a work station. That said, you can live with any of these problems – believe me, you'll find lots more to whinge about once you actually start using it.

As for your comment about the Archie, I can say very little because I have rarely encountered an Archie. Do they really exist? Joking aside, until you actually sit down and play with a computer it's very difficult to say anything worthwhile. On to your other points.
1) Latest Agnus is the Fatter Agnus, 8372A. Latest Kickstart is 1.3 release 34.5. Expect the latter to go up to Kickstart 2.0 when Commodore get around to releasing an upgrade kit.
2) It is, of up to 8MB actually. No games cartridges are yet available – companies generally use ROMs to set up peripherals like hard drives and games -freezer cartridges.
3) There are sundry tools for importing IFF pictures into games that you write yourself. Typically game screens are designed in DPaint and then changed into RAW binary format to incorporate within games.
4) No actually, computers were invented to process large amounts of digital information very quickly. Hard to believe but quite true.
5) No, 512 KB (how often people miss the b these days and forget what it means) is short for 512 Kilobytes. That is, 512 x 8-bit if you really want to think of it like that. The way the computer uses this is completely independent of the RAM set up. 16-bit computers like the standard Amiga grab two bytes at a time, for instance.
6) The Amiga can emulate the PC, Mac, BBC, C64, Spectrum and (believe it or not) the Amiga.
7) No. That's up to the programmer to incorporate into games, and it's quite heartening to now see games that do this as more Amigas now have 1MB of RAM. If you want to mess about with your own copies of a game to do this, fine. If you break into a game for anything other than your own private study then you could be infringing on the sales conditions of the game.
8) Yes.

can be healed but only if you're a miracle worker. Otherwise, get a replacement from the manufacturers of the game.

The Lazarus name is a biblical reference: DiskDoctor calls disks that if it thinks it might have brought them back from the dead...

WHICH ERROR?

While messing around with the CLI I was given error number 212. I can find no explanation for this in any of my Amiga manuals. Please could you enlighten me?

P C, Lancashire

'Object is not of required type'. You are attempting to do something with a file that it will not do. It's fairly rare indeed to get this from the CLI.

NUMBERS PLEASE

I have just invested in a modem for my A500. I have many numbers for bulletin boards which I used to use with my C64. Most of these bulletin boards have now closed down, so I don't have any relevant numbers now. Please can you print the numbers of a few bulletin boards so that I can use some of the PD software which I read about in your magazine.

Dominic Torrisi, Manchester

Try 01-For-Amiga, 071 377 1358: Amiga Shack, 0737 361178: CIX!, 081 399 5252. Or you could try Phantom BB, which is a viewdata service on 0226 340425.

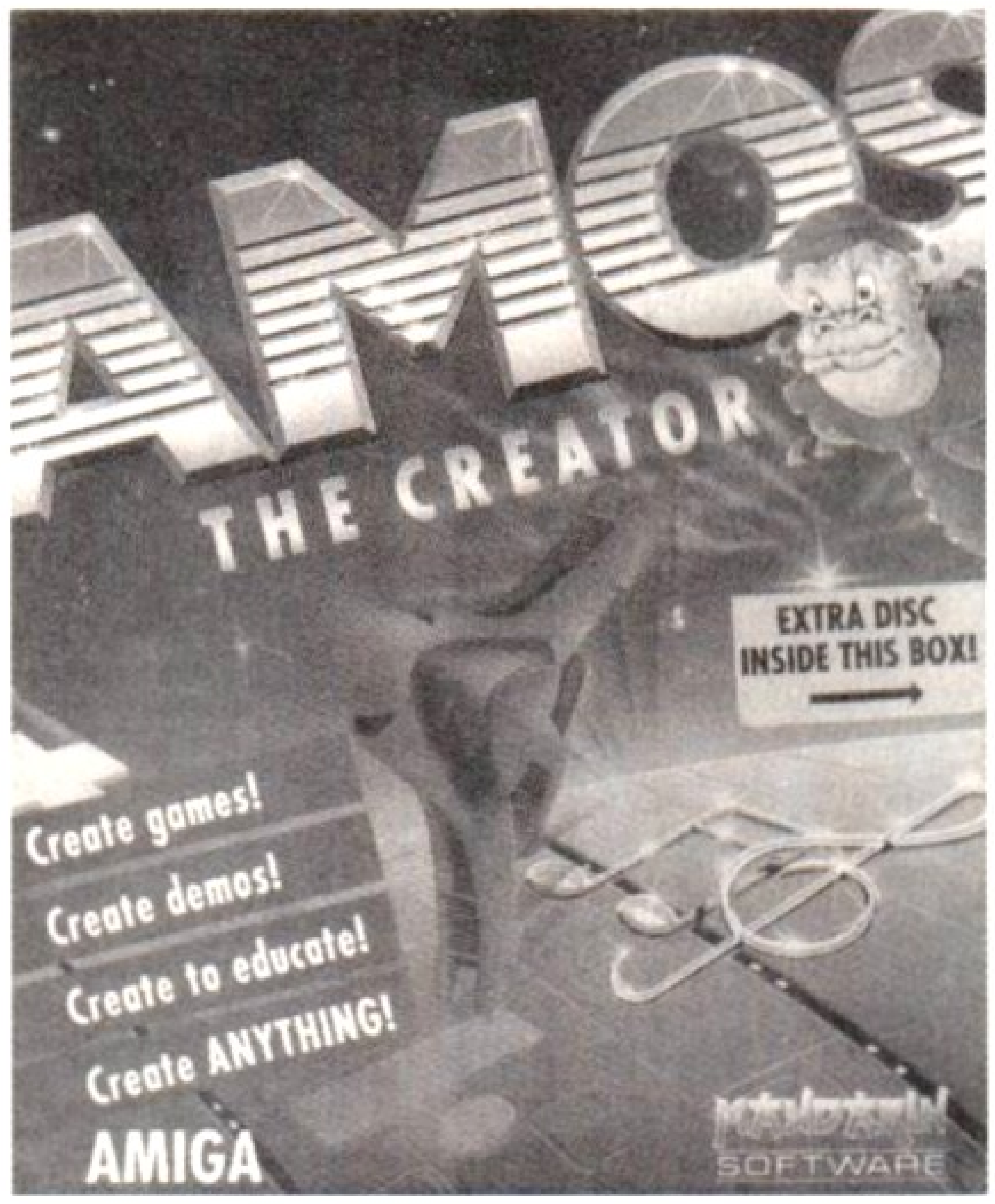
BUDDHISM OK

I am in need of help! After receiving an Amiga for Christmas I have started having problems. The type of problems that made me think there was some kind of Buddhist temple in my machine. You guessed it, the Guru had decided to meditate with me.

First the nice little man inside my machine tells me of a software error, task held, select cancel to reset debug. So I have no choice but to reset, then the Gurus come. I thought it could be a virus, so I checked out my entire collection of disks. Apart from one called *Lazarus* (which I tore into little pieces) they were all ok. Please tell me why my machine is doing this, it's driving me up the wall.

Gareth Davis, Harrogate

SIMPLE AMOS



I might buy AMOS. First I would like to know whether I can create games by drawing them or whether I have to type for hours then find I can't save anything and ending up starting over again. Also does AMOS makes its own disks up complete to order, or do I have to set up my games to autorun? Do I need separate data disks?

David Coombes, Washington

AMOS is not a creator. It's a version of the Basic programming language – unless you are pretty happy with writing Basic programs, then don't buy it. In other words, yes you will have to type for hours at the keyboard, as well as designing the graphics for games with the mouse and a paint program.

Having said that, AMOS does allow you to create programs and games with it. But don't expect to pick it up and use it instantly to write a best seller – it takes a long time to find your way around.

Yes, you can incorporate AMOS programs onto separate disks, and the manual is pretty good at telling you how to do this. Don't expect to start writing things with it straight away – you have to learn to walk before you can run.

Guru Meditation Numbers are error messages that the system puts up when a program misbehaves. The first number is the actual error number, the second is the address where it occurred. Remember, when you get a Guru it's not the machine causing it – it's the software running at the time.

About all you can do is use software that rarely causes the machine to do this. Mind you, the commonest Guru number is #00000003, which simply means out of memory: that is the computer does not have enough RAM to perform a task.

If ever proof was needed that the Amiga's designers were a different set of people to the norm, the Guru Meditation is it. Shame it's going to be scrapped in Workbench 2.

WHAT'S IT MEAN?

Every time that I use *Deluxe Paint III* I keep getting the message come up: 'Can't Open Not an IFF File'. What exactly does this mean and how do I get around it? How do I go about securing disks or files with a password?

Matthew Coveney, Surrey

You are trying to load a file into DPaint that is not a standard picture (generally referred to as an IFF file). You get around it by labelling all of your pictures with .IFF on the end. It doesn't harm anything to try and load in a file that isn't a picture – so don't worry about it.

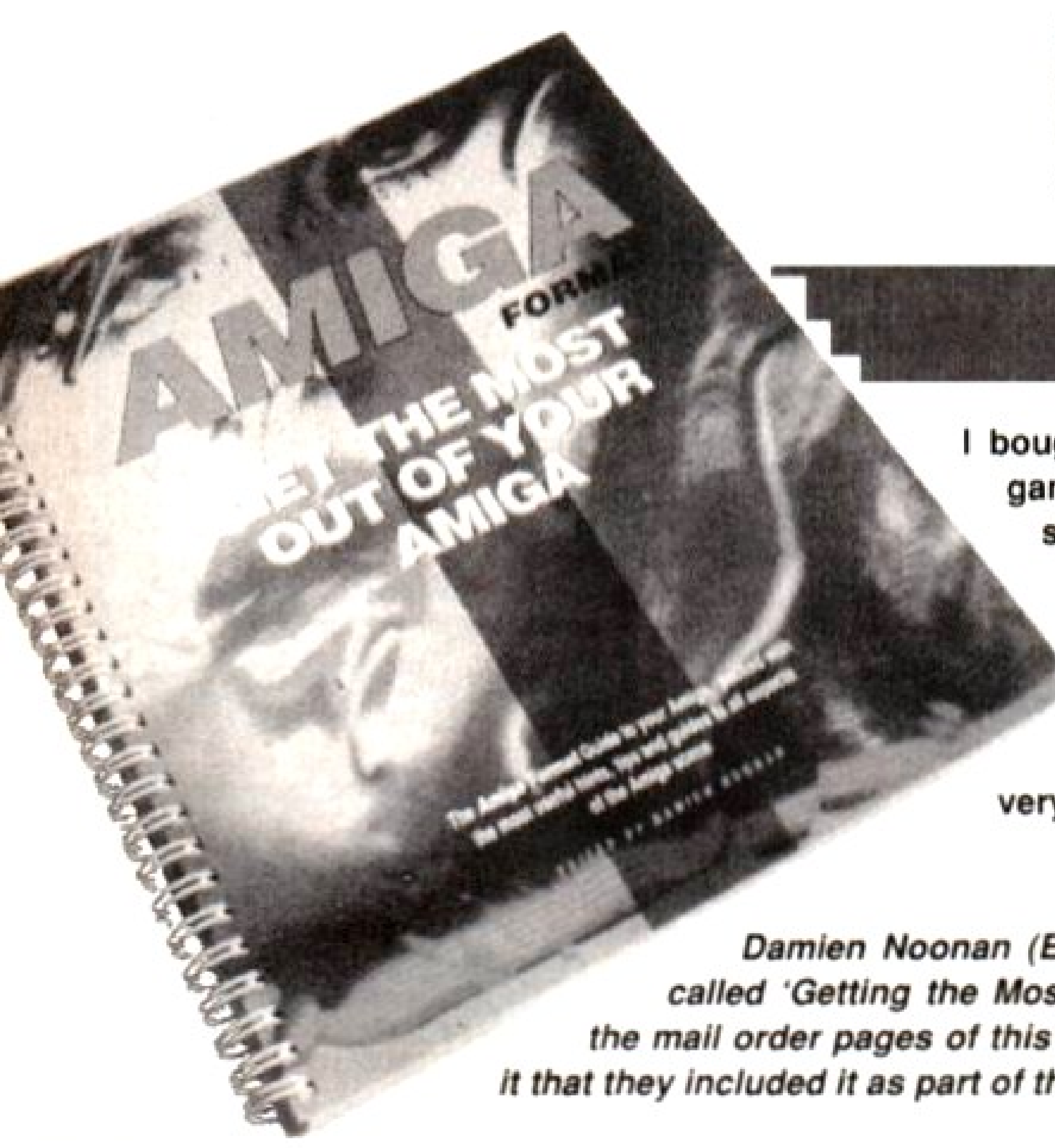
As for a password program for the Amiga, I've had several requests for one so I'll be putting one on a future Coverdisk.

ULTRA SILLY

1) Does my Amiga have Kickstart 1.3? It was bought a week before Christmas.
2) Which 1.5 Mb memory upgrade is the best to buy?
3) Which 0.5MB upgrade?
4) Which printer (for less than £250) is the best buy?

Matthew Hare, Macclesfield

***1)** When you first turn on your machine and you see a picture of a hand holding a disk and if it says 1.3 then it's a 1.3 machine!*
2) My personal favourite companies for memory expansions is Ashcom, although Evesham Micros and Trilogic are well worth checking out (see their adverts in this issue). Also the memory round-up in AF16 should help.
3) See above.
4) Look for a cheap 9-pin which is Epson compatible. Avoid 24-pins unless you don't want to print out graphics (9-pin graphic printouts look better). If you want colour, then the Star LC10 or Citizen Swift 9 would be pretty good buys. Make sure though, that whatever printer you get, you also get a suitable printer driver with it and a connecting cable.



PD Q&A

I bought an A500 six months ago. I only ever play games on it, but I would like to learn how to do simple programming and how to operate the Workbench. I cannot find any books that do not throw me in at the deep end. On my old Amstrad CPC464 I could do very simple programming but I am completely lost on the Amiga. I need a book that will start me from the very beginning.

William Woods, London

Damien Noonan (Editor of AF) wrote a book to fill this need. It's called 'Getting the Most Out of Your Amiga', and is available through the mail order pages of this magazine. Commodore were so impressed with it that they included it as part of the A1500 package.

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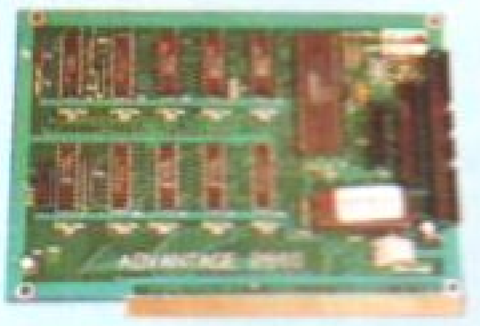
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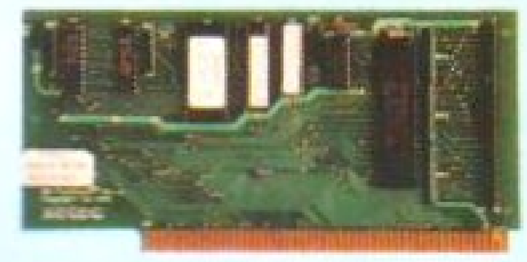
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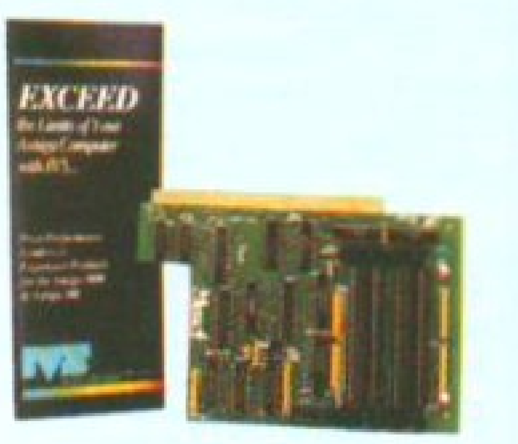
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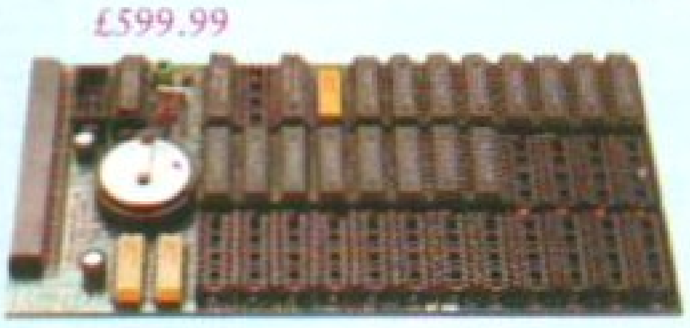


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Taking the First Steps

In the sixth part of this series, **MARK SMIDDY** dissects some of the extra tools supplied with Workbench 1.3.

LESSON 18: GETTING MORE FONTS (PART 1)

Commodore supply three extra fonts on the Extras disk. Unlike the slightly quirky fonts supplied as standard, these are high-quality industry-standard type-faces from Adobe – the designers of Postscript. Times, for instance, was originally commissioned by the Times newspaper. Courier on the other hand is a simple typewriter-like font that has some unique uses.

If you have not delved into the Shell before then this is your chance. You're probably also wondering where the fonts are kept: well at Workbench level, they never appear and that is precisely why this example is going to take you straight into the heart of AmigaDOS.

One of the cleverest things about AmigaDOS is it is possible to tell it where to look for its fonts. Fonts, not surprisingly perhaps, usually live on the boot disk's 'Fonts' directory, but they could be anywhere – even on a completely different disk. This is the whole key: since fonts are a little disk-hungry, you might well need a whole disk containing nothing but fonts! This stuff is a little advanced yet, but the principal can be illustrated by this simple example.

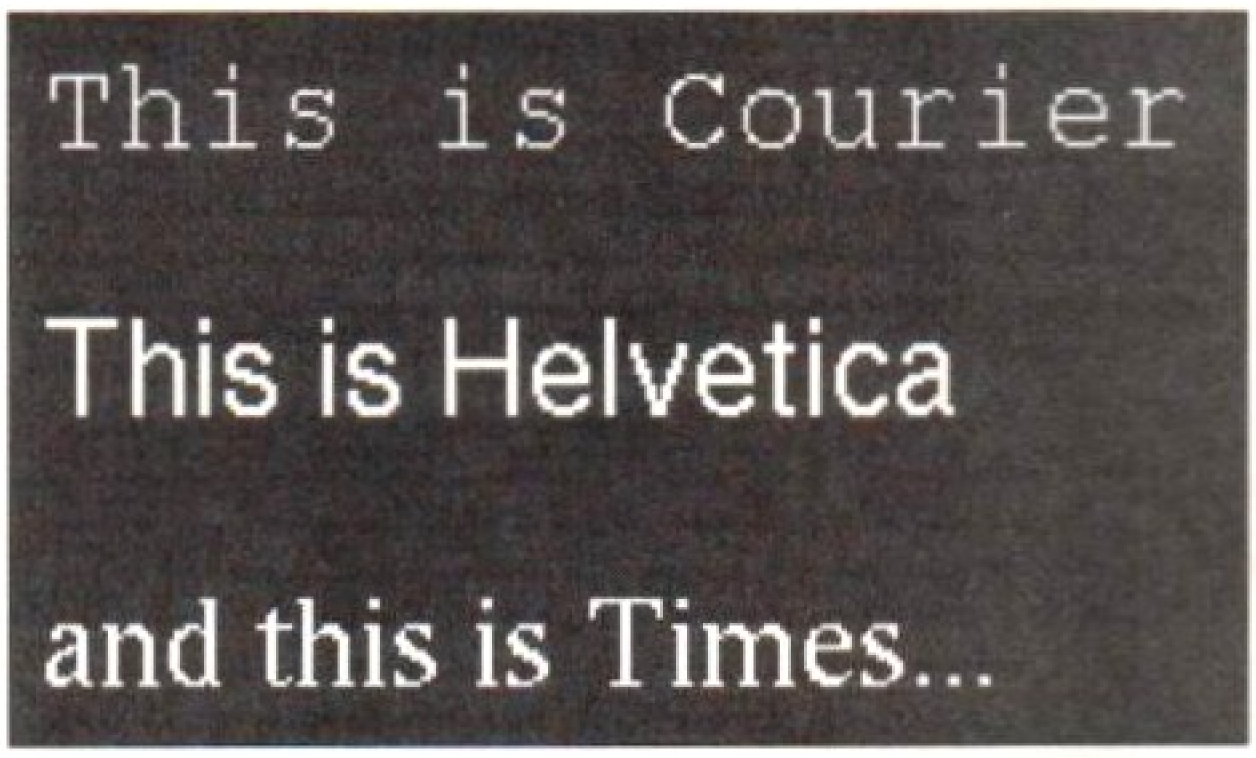
1: Make a copy of your Extras 1.3 disk – the one with AmigaBASIC on. (Reminder: you can do this by clicking once on its icon and selecting Duplicate from the disk menu.)
2: Select the disk marked "Copy of Extras 1.3" and rename it MoreFonts. Letter case is not important, but it is vital you do not put a space between the words. (If the disk is not present on your Workbench, then pop it in to any drive.)
3: Replace Workbench in any drive and open the Shell icon.
4: The Shell window will appear with a 'prompt' ready for you to enter commands. (If you have used an 8-bit machine such as the BBC or the C64 you will already have used something similar.) The prompt will look something like this:

```
1.SYS:>
```

However, for the sake of clarity I'll adopt a simple prompt: '1>' to show you where to type something. Do not type the prompt, just what comes after it. At the end of the line press return to send the command.
5: Next we are going to write a simple AmigaDOS program – a script. Enter the following:

```
1>ED SYS:FontsPlus
```

after a short while a window will appear. This is *ED* – the AmigaDOS screen editor. *FontsPlus* is the name



Here are the three extra, rather snazzy fonts that are supplied on the Extras disk.

of the script program you are creating and SYS: before the name makes certain it goes in the main Workbench drawer – the root directory. If you have a word processor such as *Protext* you can use that – see 'Word Processor Users' on Page 216.
6: Now type the following – exactly as it appears:

```
ASSIGN FONTS: MoreFonts:Fonts
```

Purists might argue letter case is not important – which is true – however, good use of both upper and lower case letters make the meaning of a program clearer.

> “One of the cleverest things about AmigaDOS is it is possible to tell it where to look for its fonts. Fonts, not surprisingly perhaps, usually live on the boot disk's "Fonts" directory, but they could be anywhere – even on a completely different disk.”

7: Press the key which is marked [ESC] – this is normally referred to as 'Escape' and is *ED*'s main 'command' key. When you do this an asterisk (*) will appear in the bottom left-hand of the window.
8: Press the X key once. Notice how X appears next to the asterisk. Now press Return and the window will close. [ESC]-X or Escape-X is a way of telling ED you have finished and want to save the file just created. If you make a mistake and get confused, just press [ESC]-Q, then press Y to confirm you don't mind losing the changes (which are called 'edits'). Now just go back to step five and try again.
9: Well done! You have just created your first AmigaDOS script program. As it stands, this script is not very accessible in that you have to run it from the Shell, but let's try running it that way. If the MoreFonts (old Extras disk) is still in an external drive, remove it now. You should be back at the Shell prompt so type this:

```
1>EXECUTE SYS:FontsPlus
```

A requester will appear asking you "Replace volume MoreFonts in any drive" – don't! Just press cancel. You should now get an error message:

```
ASSIGN failed returncode 20
```

If the requester does not appear, go back to five and check you have entered everything correctly.
10: Repeat step nine, but this time replace the *MoreFonts* disk (in any drive) when the requester appears. After a short time the requester will vanish and you will be returned to the Shell prompt. If the requester stays on screen select the cancel button, go back to step 5, and check you have entered everything correctly.
11: Assuming everything has gone according to plan, you will now have access to the Adobe fonts on the old extras disk. You can check this by entering the following command. (Single drive users will have to swap disks here; another good reason to treat yourself to that extra drive.) Shell's reply is shown in bold:

```
1>DIR FONTS: FILES
Courier.font
Helvetica.font
Times.font
```

12: Now we need a second program, to put everything back the way it was! The technique is exactly the same – the only things that change are the command and the script name. For the sake of example, I'll call this script *OldFonts*, therefore at the prompt enter:

```
1>ED SYS:OldFonts
```

Continued overleaf

The program looks like the following

```
ASSIGN FONTS: SYS:Fonts
```

Otherwise, the remainder of the instructions are more or less the same. This script will tell AmigaDOS to use the standard set of fonts (from the current boot disk).

This is all fine and nice, but it does not really address the problem of making the extra fonts easily accessible from the Workbench. That is why this tutorial is split into several small sections: the next lesson will use the scripts you have just created to do just that!

LESSON 19: MORE FONTS (PART TWO) – ICONX AND ICONED

IconX (Icon eXecute) is a special program provided with Workbench 1.3 which allows you to run AmigaDOS programs – more accurately called 'scripts' – from the Workbench. Experts use scripts to provide all sorts of extra features and even enhance AmigaDOS. More on those heady subjects later in the series. This tutorial is intended to demonstrate how to use *IconX* to provide you with a neat way to get extra fonts at the double-click of an icon.

If you have been following this lesson in sequence, you will have just created two small script files on your Workbench disk. To use these effectively from the Workbench without the hassle of dropping into a Shell, you must give them an Icon.

Icons are created in two steps. First the icon is designed and saved to disk, next it is attached to the program which requires it. Two tools are responsible for the creation of icons: *IconEd* and *IconMerge*. To keep things simple(r) at this stage, I'll only describe IconEd. The program lives in the tools drawer of your Extras disk – although you use the copy renamed MoreFonts earlier.

1: Open the Preferences drawer on your Workbench disk.
2: Drag the 'Printer' icon into the RAM disk. (The reason for this will become apparent soon.)
3: Insert your Extras disk and open the Tools drawer.
4: Double click the *IconEd* icon to start it and press OK to get rid of the information requester. (See picture
5: Now select 'Load data' from the 'Disk' menu.
6: Click in the box under 'Enter Icon Name' and press Left-Amiga and the X key. This deletes the entire line. Now enter:

```
RAM:Printer
```

(see picture) and click the 'Load Icon Image' gadget. This operation should load the image for Printer Preferences into the current frame. If the icon does not appear, go back to step one and try again.
7: Now you can select 'Clear frame' from the 'Misc' menu and start drawing! *IconEd* is best learned by experience – most of the features are self-explanatory – apart from load and save data!
8: When you are happy with the final result, select "Save data" from the "Disk" menu. Now give the icon the following name:

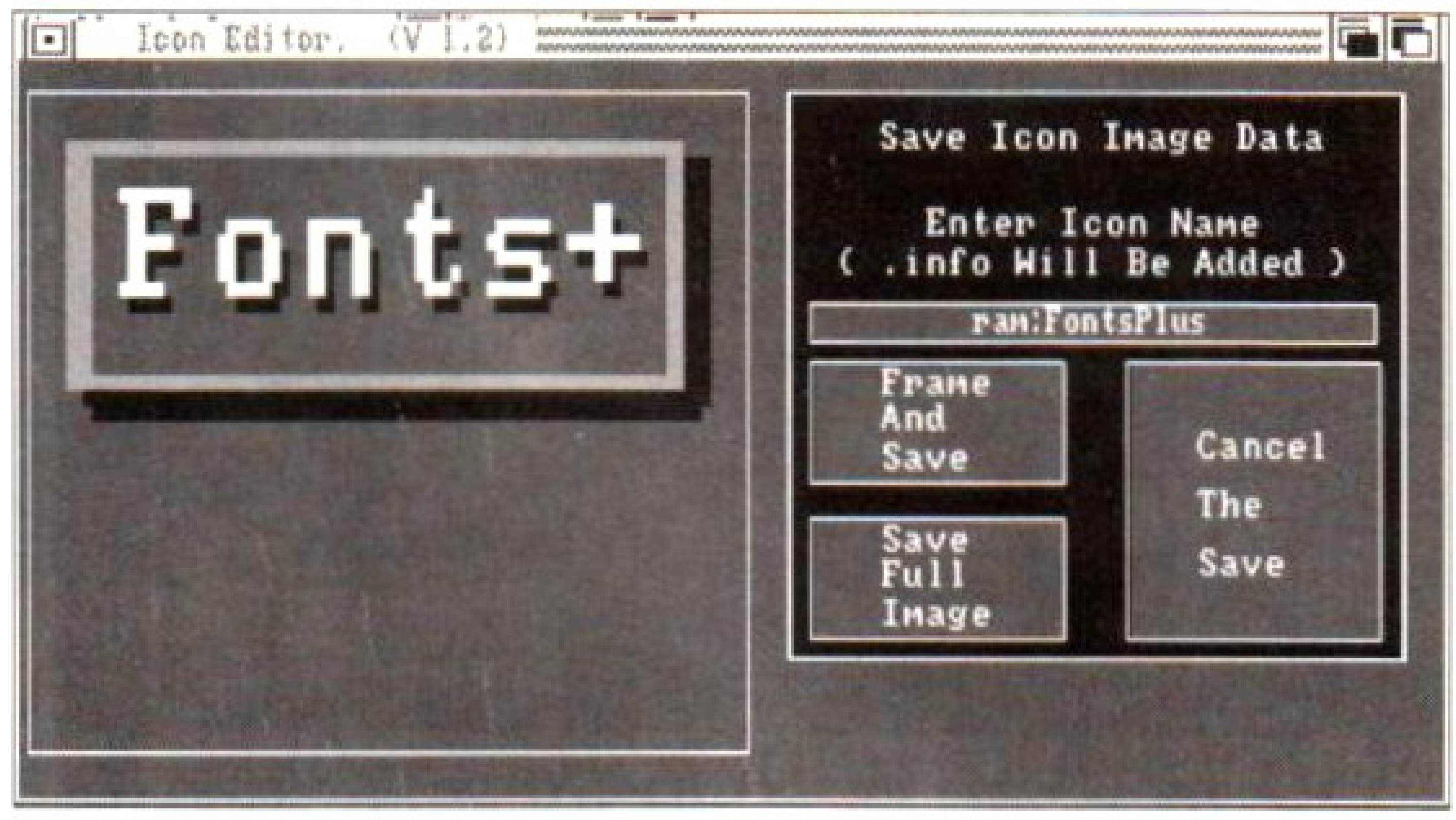
```
RAM:FontsPlus
```

(see picture) Now click on the 'Frame and save' gadget. This is the best selection (unless you have defined a very large icon). To frame your image, click at its top-left corner, move the mouse so a frame surrounds the complete image, then click the mouse again.
9: Move the *IconEd* window out of the way so you can see the RAM Disk's icon. Open the RAM disk and have a look at your icon – try clicking it to see if the effect is right. Keep experimenting until you're happy – but remember you must close and re-open the RAM disk to see the new icon (see picture).
10: To finish, click on *IconEd*'s close box (don't forget to save the image first). Now copy your new icon by dragging it from the RAM disk onto the Workbench disk, making sure to put it in the main Workbench window and not in another drawer.
11: Open your Workbench disk and select the new icon. You may want to 'Snapshot' it into position first, so see *Amiga Format* 21 for how to do this.
12: With the icon selected, choose Info from the Workbench's Workbench menu. Now click in the "Default tool" box – and replace:

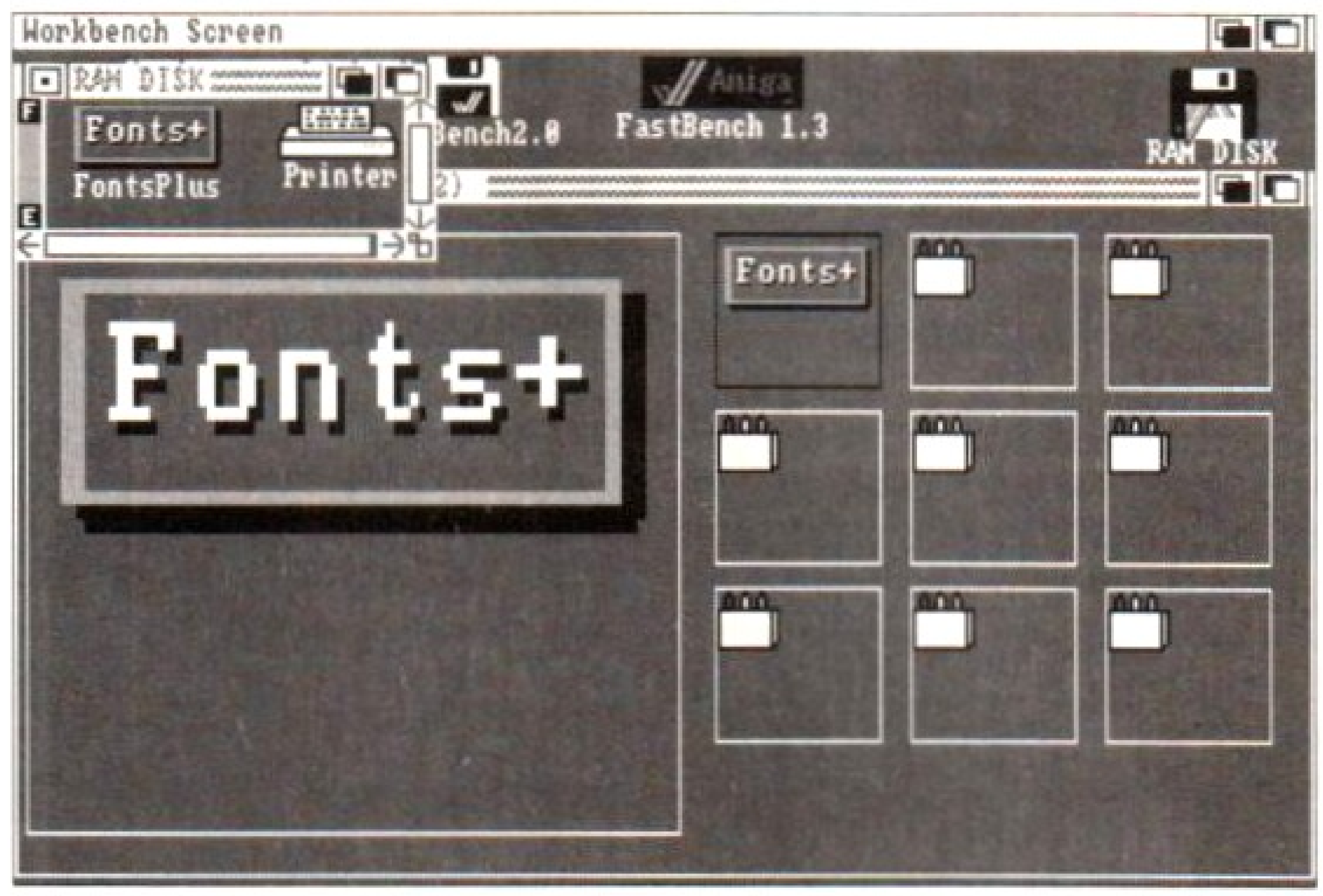
```
SYS:Prefs/Preferences
```
with
```
C:IconX
```

13: Similarly, delete the contents of the Tool Types box – these are not required for this demonstration.

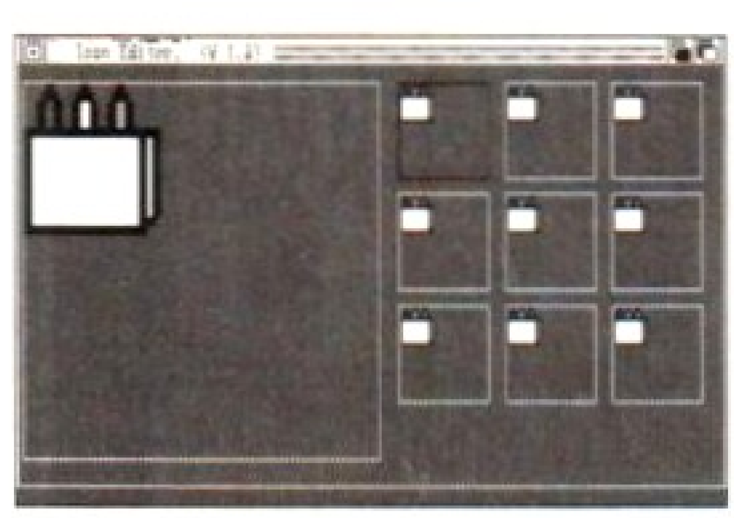
Continued on Page 216▸



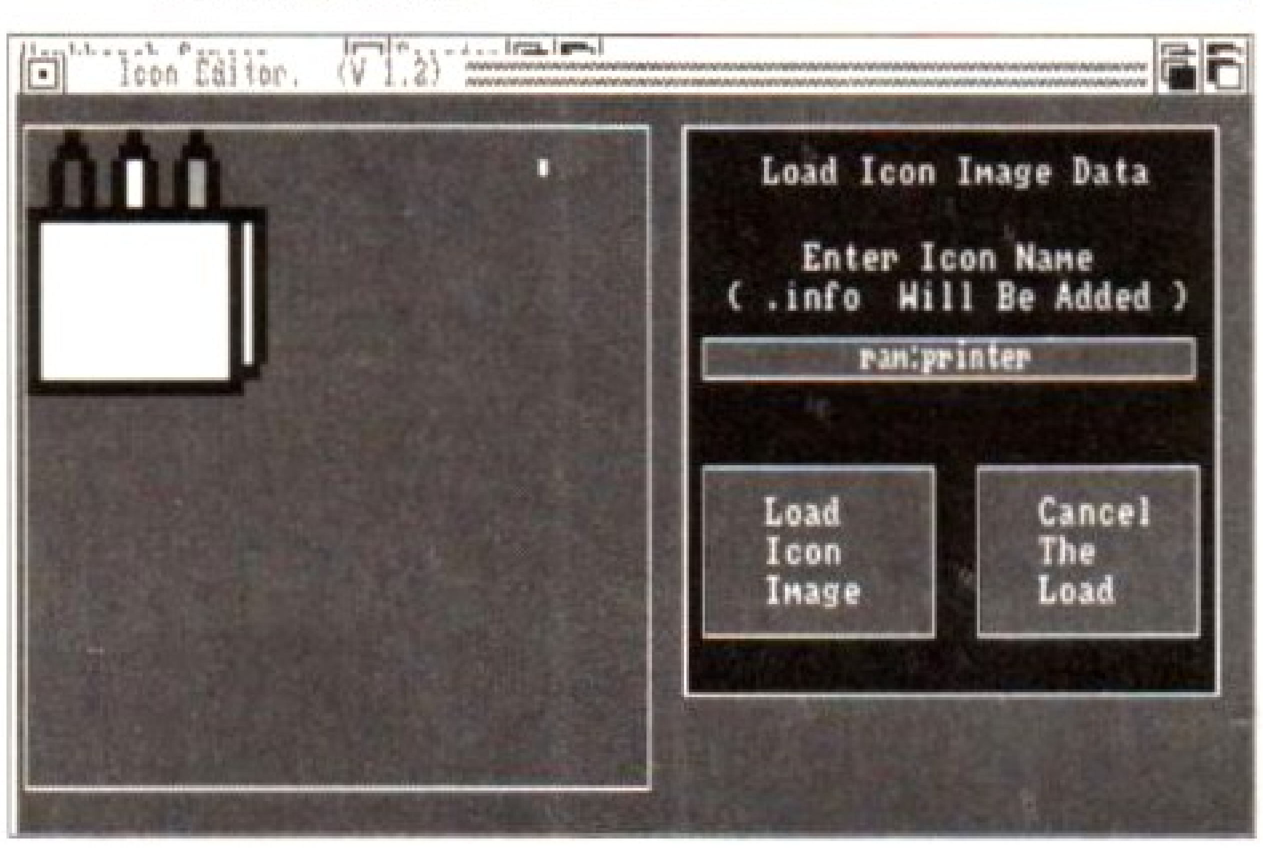
Step eight of the creating icon lesson: you are about to give the icon which you have created a name.



Step nine: to have a look at your newly-created icon simply move the window down until the RAM disk icon is visible, and then double-click on it to open it.



Step four is to open *IconEd*, at which point you'll see this screen.



Step six is to load the icon you want to change by typing its name: in this case, it's RAM:Printer.

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14: Now double-click on your icon and a small *IconX* window will appear. After a short time, a requester will appear asking you to insert volume MoreFonts: (assuming of course, it's not already in one of the drives).
15: If all has gone according to plan, drag your new icon back to the RAM disk and start *IconEd* again.
16: Now select 'Load data' but this time use the name: RAM:FontsPlus
17: Create a new icon (this time for *OldFonts*) and save it with that name.
18: Follow steps 7-10 but save the icon with the name *OldFonts*. When you're happy, just drag the icon back to the Workbench disk. There is no need to go through the remainder of the steps (unless you want to check the Info box) because the Default tool is saved along with the icon data.
19: When you reset the machine, and start using the fonts, you will have the normal set. To use the new fonts just open the *FontsPlus* icon – the program will prompt you for the correct disks. Many applications (*NotePad* etc) read the fonts when they first start, so you should open *FontsPlus* first. To put everything back to normal, just open *OldFonts!*

LESSON 20: MORE FONTS (PART 3)

The temporary method (covered above in the *IconX* tutorial) is fine, but the permanent solution is less hassle if you can make enough room on your Workbench disk.

Before you start, take a look in the Utilities drawer on your Workbench disk and see if there is anything you don't use very often. CMD, ClockPtr and Clock are typical candidates for the Trashcan.

1: Open the Shell prompt.
2: Put your Workbench disk in df0:
3: At the prompt (1>) type the following (the Shell's response is shown in a ruled box, Figure 1, for clarity):

```
1>INFO df0:
```

IF YOU GET STUCK

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```
Unit Size Used Free Full Errs Status     Name
df0: 880K 1560 200  89%  0    Read/Write Workbench
```

Figure 1: Shell's response to Info

The number you should be looking at is the the number of blocks free – you will need at least 198. This disk has 200 blocks available which is just enough. Fonts, like any files, take up room on the disk. Because the Adobe fonts have a more professional feel to them, you might want to remove some of the standard Amiga fonts that you don't use and put these in instead! If you already have enough free space you can skip to seven.
4: For example, assume you want to get rid of the Sapphire font you enter:

```
1>DELETE FONTS:sapphire all
```

5: It is also possible (but more difficult) to remove just certain sizes. Every font has two entries in the FONTS: directory. A 'dot-font' file (.font, eg Helvetica.font) and a font sub-directory which contains the actual definitions. You can see how this works by entering the following:

```
1>DIR FONTS: ALL
Courier (dir)
  11     13      15
  18     24
[etc]
```

6: The larger numbers are the files belonging to the bigger type faces. Large fonts take up more room on the disk, so you might want to delete some of the larger ones: For instance, if you wanted to remove the large Diamond font – diamond 20:

```
1>DELETE FONTS:diamond/20
```

7: Adding the Adobe Fonts

When you have cleared enough room on your Workbench disk, the following command will duplicate all the fonts provided on your Extras disk onto your Workbench. Note, this command line is quite complex so be sure to get all the spaces in the right places. The quotes around the source directory (Extras 1.3:fonts) are required because the volume name 'Extras 1.3' has a space in the middle.

```
1>COPY "extras 1.3:fonts" to
fonts: all
Courier.font..copied
Helvetica.font..copied
Times.font..copied
  Courier (dir) [created]
  11..copied
  13..copied
  15..copied
```

[and so it goes on until you are finally returned to the CLI prompt.]

Now type:

```
1>FIXFONTS
1>ENDCLI
```

You will now be returned to the Workbench and the new fonts will be ready for use. Purists will probably argue FIXFONTS is not required unless you have changed contents of one of the fonts directories. However, it only takes a few seconds to run and makes sure any changes you may have made are taken into account. The ENDCLI command just shuts down (closes) the Shell window. You can leave it open if you want to experiment a bit more.

Thus endeth the sixth lesson.

NEXT MONTH: More about fonts, icons and extra tools.

The A-Z of Computer Terms

Builds up in monthly parts to a complete glossary. Part Six: W.

Warm boot: To reset the machine using a Vulcan nerve death grip. This clears all memory and resets the machine back to its initial configuration. Some software – viruses for example – will survive this sort of boot.

WIMP: Windows, Icons, Menus and Pointers. Windows, Icons, Mice and Pull-down menus. There are several generic interpretations of this particular acronym, of which the above seem to be the most popular. Used to describe a 'simple user interface' to DOS which was first envisaged by Rank Xerox. See also: DOS, GUI, Workbench

Window: Part of the screen partitioned off from the rest where programs can display information as text or graphics. The concept is similar to the screens found on older machines like the BBC Micro or the Spectrum. On the Amiga, though, every program thinks it has total control of the window – this is the essence of a good WIMP environment. Windows are just part of the display and are attached to a screen. See also: Screen

WOM: Write Once Memory. This only applies to the Amiga A1000 (a very early machine) and later development models – which are supplied with Kickstart on disk. When the machine is first switched on, Kickstart is loaded from disk into this 256K area of RAM. Once loaded, the RAM behaves exactly like ROM – hence WOM. See Kickstart.

Word or Snack: Two bytes or 16 bits. A standard unit of measurement in larger computer systems like the Amiga.

Workbench: The Amiga's WIMP ended DOS environment or GUI. This is the area where you will do most of your work until you feel more secure with the machine. See also: DOS, GUI, WIMP, Mouse.

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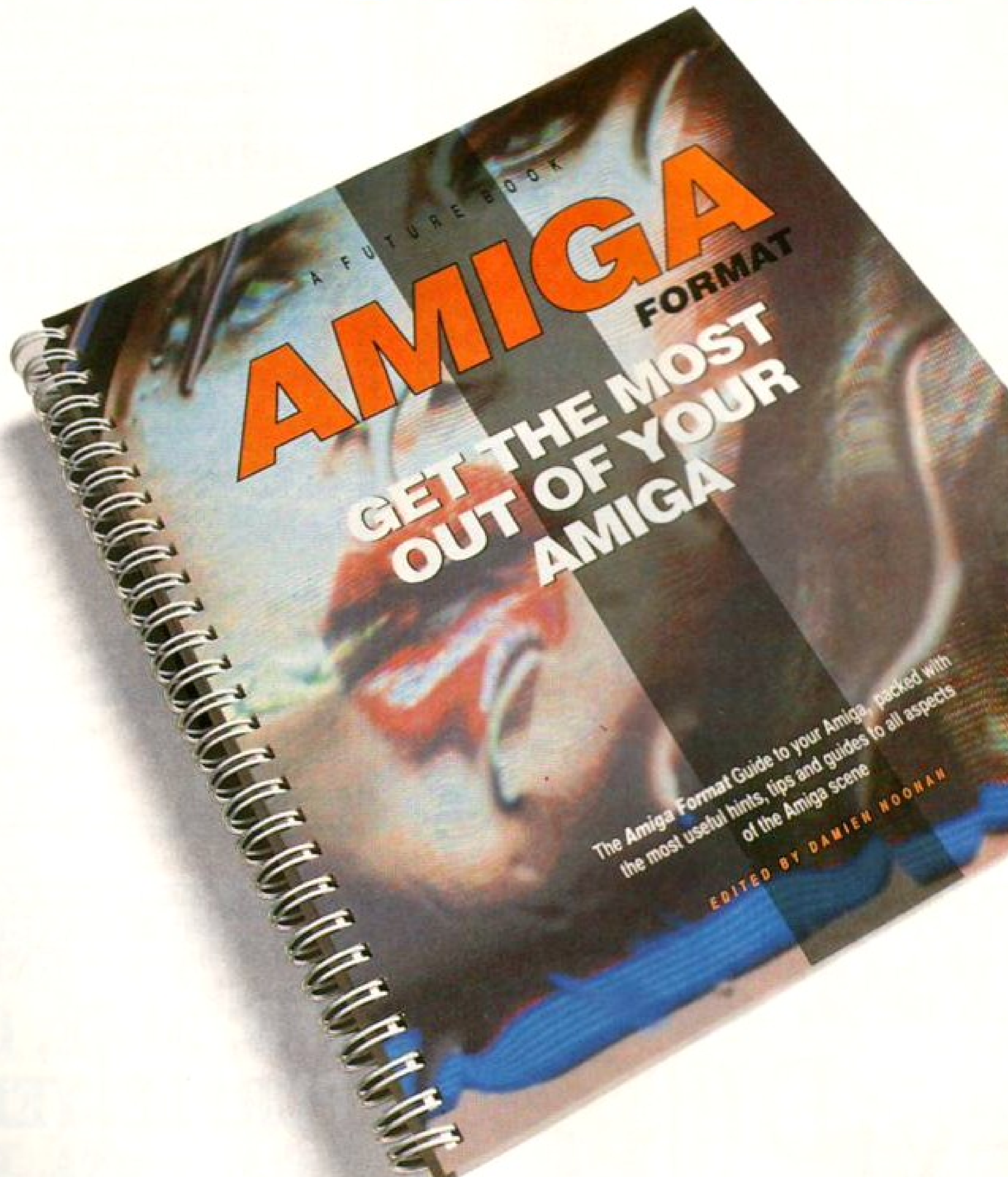
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Letters

We asked, as the last question of the questionnaire, 'Please use this space to give any other comments on how Amiga Format can be improved'. We had literally thousands of responses to the questionnaire, and your answers to this last question were interesting and very helpful. Here's just a small selection of those which most nearly represent the views of the majority and a few comments from the Editor, Damien...

This month's Letters pages are devoted to your comments from the Questionnaire in Issue 19, the results of which appear on Page 229. Next month we'll be back to normal correspondence, so keep writing to **Letters, Amiga Format, 30 Monmouth Street, Bath BA1 2BW.** But for now, let's hear what you really think about the Amiga and about Amiga Format...

I would prefer the magazine to be issued twice a month.

KW Holton, Dudley

Which would mean I'd have to work 24 hours a day instead of 12! Oh, no thanks! Still, I think that was a compliment... so thank you!

Coverdisks could be a lot better: like *CU Amiga's Robocop 2* playable demo.

James Butler, Maidstone

And playable demos of the year's top releases like Lemmings (which scooped all the awards at April's European Computer Trade Show and has outsold anything on earth) and the Bitmaps' Gods aren't good enough for you, eh? Come on!

Put all the ads in one place: number all the pages: provide an ongoing, updated index: colour-code the top right-hand of each page according to feature.

John Dutton, Tunbridge Wells

I agree with several of these. I'm not convinced of the need for an index, and it wastes valuable pages of which we have too few to do everything we want anyway. New, larger page numbers now help you navigate around the magazine and appear on some advertising pages, but we can't put them on every ad because the advertisers simply wouldn't agree to it. The problem with colour coding is some of the pages are in black-and-white, but I'd very much like to do it. And I agree about keeping ads separate, but the advertisers prefer to have their ads next to articles of relevance, which does make sense for readers too. If you want to know about graphics programs, for instance, you should be able to look for the reviews and find the ads for the best prices nearby.

Your *InstallPrinter* program wasn't as good as the original Commodore one: it didn't work!

James Binning, East Sheen

Errm ... true. And how embarrassing! But we did give you an updated version which did, and we are not putting any more 'little programettes' on the Coverdisk until they've been proven by several months testing.

I would like to see an adventure column to help with problems by giving tips.

Paul Davidson, Ballymena

We've started the Gamebusters 'Helping Hand' column as a regular, to give help to people who are stuck on particular games. We expect it to get much bigger, and if there are any questions we can't answer, readers will be able to win a prize by sending in their solutions. get writing!

Run a programming tutorial with information on programming spec, memory used etc.

G Marshall, Bridgwater

As you will see from the questionnaire results on Page 219, this is one of the most-requested features. We are planning to do a very special programming tutorial in the very near future, with advice from a top team of programmers and tutorials on the Coverdisk. More news soon!

I cannot fault you at all. Everything I need you have got. Like good wine, you get better with age. Keep up the good work!

Douglas Kennard, Aston

Oh! Thank you very much ... I just-don't know what to say!

It would be very much appreciated if advertisers could be asked to code the games software, ie: A Adventure, ACD Arcade or SH Shoot-em-up. It is very difficult to know what is what.

Anonymous

Not really something we can do for you, but I hope advertisers who read this might pay some attention to your request. Of course, I would recommend that you read our reviews so you know what you're buying in the first place. For the low-down on older games you could refer to back-issues of the magazine.

Please get rid of the game demos, they are a waste of space and money.

Mark Philpotts, Romford

They're there for a very good reason, though. If you look at the results of the questionnaire, over 90% of readers will buy games in the next year. That's over 90,000 game-buyers. The demos give you the chance to find out how good a game is and make, as they say in the trade, an 'educated purchasing decision'. Plus they can be very enjoyable, like the fun puzzle game Atomino on this issue.

A big feature on printers, with the lesser-known drivers on disk.

DI Sellwood, Lowton

Good idea: hopefully very soon.

Please find more room for educational reviews and updates. Like many parents, it is this aspect of the Amiga I wish to develop.

KW Allen, Codsall

I hope you found the educational round-up in the last issue interesting and relevant. We plan to cover all the educational software released in regular features like that one, about once every three months. The quantity of educational stuff being released does not really make more frequent attention to it viable.

More detailed descriptions of PD software, even if this meant covering less programs.

John Smith, Huddersfield

Since PD is extremely cheap, it seems to make sense for us to give you a brief description and then a recommendation, then you can buy it and try it for yourself to learn more. Remember we look through stacks of the stuff every month and pick out only the best to put in PD Update.

More PD **(David Lang, Beer)**: More to do with PD - 250 pages minimum, please! **(Martin Ripley, Spennymoor)**: and a whole stack of similar requests...

It seems PD is very popular indeed. I think an alternative way of covering more PD outside the PD Update section itself could possibly be a good idea.

More competitions, more news and more about computer games.

Chris Halls, West Ewell

As you will see from the results, competitions are very popular: but they do take up a lot of space which I feel could in many ways be used better for the real business of the magazine. Still, you want them, so we'll do them. there could be a way of getting more of them into less space: plus we've got a big competition special issue planned for the near future!

News is a bit tricky. Sure, we'd like to give you more of it: but what we really want to know is what sort of news you'd really like. More on any particular kinds of hardware, like printers? More on games? More on what's happening in over in the US? I'd really like some comments on this, so address them to Letters.

As for games, you'd have thought we did enough on those already! We already give you more games reviews than any other Amiga mag, so what more can we do? Suggestions, please...

More complete games on the Coverdisk: I loved *Sys!*

Anne Summers, London

Yes, it was rather amusing, wasn't it? Well, hopefully a crack at the very silly Drive IFF and a total absorption in Balance of Power will entertain you this month: but if you want something a little more amusing, take a look at the big news about next month on Page 13. We are bound to have more fun of the Sys kind on future disks, but remember that we prefer reader contributions to PD stuff: so if you're a reader who's written anything similar, send it in!

A panel on budget games. A free full game every few months!

Anonymous

The amount of good budget stuff on the Amiga is increasing hugely of late and prices are coming down as low as £3 for the first time, so yes, you can expect a little extra value in the form of budget coverage very soon. Free games? Well, we've got a compete full-price game on the Coverdisk this month and more good news for you on Page 13, but we suspect this may be the last time you'll see complete full-price 16-bit games on magazines for a good while. Grab it while it's hot!

In-depth introductions to areas of computing, reprinting early issues.

M Sanders, Enfield

We simply can't afford to reprint earlier issues: it actually costs a small fortune. Should we do some kind of Amiga Format yearbook or annual, containing all the best bits? As for in-depth intros: yes, definitely. The thing I want you to tell me is which areas you most want to be introduced to. Letters, please, as ever.

How about DIY hardware projects?

B Bal, Wolverhampton

The only problem we've found with hardware projects is that the things it's fairly easy to do, such as sound samplers and boot switches, are now available at a good level of quality and an extremely low price. this makes it a little bit pointless, don't you agree? If anyone can come up with a cracking and really viable project, we'd be interested, but I don't think the majority of Amiga owners nowadays are, like the computer owners of yesteryear, big home electronics fiends as well.

More things about Godzilla.

Chris Ball, Holbrook

I don't think we can really give Godzilla more coverage without a fair balance towards other large, ugly and outdated monsters - like the Atari ST, for instance. (Ooh, did you hear that? Blatant editorial bias coming out, there!)

A reviews section aimed at the under 11s, both games and serious software.

Louise Saggers, Tonteg

It's a very nice idea: but a luxury we can't really afford, I think. In much the same way that we try to achieve a balance between more experienced Amiga users and those new to it, we try to address a wide audience. Amiga owners tend, on average, to be older than the age group you mention, so that's more or less where we settle. Plus we try not to talk down to readers — on the contrary, we try to stretch our horizons and yours -- so we often aim a little higher. We'd like to think using the Amiga is quite a sophisticated operation and that we reflect that in our approach. Still, comment noted.

The Coverdisk could have more useful utilities that are usable from Workbench rather than aimed at programmers: eg workable graphics, music programs, spellcheckers etc.

A I Sargent, St Albans

I quite agree. As mentioned, it depends on the quality of the programs readers are writing, so please send them in. We are going to take a careful look at the Coverdisk soon, which might well result in a kind of plan for what each disk will regularly contain. Again, more detailed opinions would be very much welcomed.

The *Format* magazine could not be improved.

Steven Walker, Little Eaton

I just slipped that one in to cheer myself up! A lot of you were very kind indeed about the magazine, for which we are immensely grateful, and we will continue to do our best for you. Still, back to the criticisms because they will help us to carry on getting it right...

Improve accuracy.

J Taylor, Burntisland

A few of you point out that we allow a few minor inaccuracies to creep in, and point out an example on the questionnaire page itself where we referred you to the wrong page to look up the covers of past issues. Mistakes like these are made for a number of reasons, but mainly it's down to time. We are committed to constantly improving the quality of production of the magazine: these little things irritate us as much as they do you. I'm sure you'll agree, such mistakes are few and far between: and in general, we expect more of ourselves than any reader ever does. There's many a daily newspaper that makes more fundamental errors than we do.

Prizes for listings sent to you.

John Rimmer, Ormskirk

We like the idea and may well be trying it soon.

The second Coverdisk was a very good idea: please do it again.

Yann Bouckaert, Belgium

You asked, we delivered. The questionnaire was in the issue following our first experiment in a second Coverdisk, Issue 18, the Christmas Special. Sadly we didn't ask whether you would like to keep getting two disks and paying the extra £1, but it was probably the most frequently-expressed opinion of all in the comments attached to the questionnaire.

Now, this raises two interesting problems. One: would you be happy to pay £3.95 every month for a magazine with two Coverdisks? Two: is the extra Coverdisk a valuable gain if it contains, say, a suite of utilities that have never been sold in the shops rather than a complete game which was priced at £24.99?I must admit, we would rather give you an extra Coverdisk at no extra cost: but considering the extra £1 is more or less the price of a single blank disk, I reckon it's not a bad deal to get the disk plus the extra software.

Opinions, please, as ever...

I would like more info about release dates of games – and please put your disk labels on the right way up!

D Kay, Purley

Generally, we are one of only a few magazines that attempt to review software just before the actual release date, rather than desperately trying to get reviews in ahead of our competitors and months ahead of when you will actually be able to buy them. Previews, on the other hand, is a place where you really need to know how long it will take before you can expect to see a game. That's why we not only mention an expected arrival date (the ETA) but have also introduced the new Previews Update to tell you how things are going and whether games have been delayed by any problems.

As for the disk labels: the people who stick the labels on are the people who duplicate the disks, and they are under strict instructions to stick the labels on 'the right way up'. Now, as far as we are concerned this means that when you hold the disk with the metal bit at the bottom,the label will read the right way up. Opinion seems to differ, but we think this is the right way. All Amiga Format Coverdisks will be this way up from now on.

Review more serious software.

Graeme Sadd, Ipswich

Obviously there is one major limitation to how much we can review, and that's how much is released every month. We cover nearly all, if not absolutely all, the serious software released every month — and we make sure to cover every important product. if you know different, then by all means write in and say 'You didn't cover such-and-such' and we'll see why not. but I reckon it's unlikely.

Because the Screenplay section is a discrete entity in its own right, it can very often seem to occupy more than its fair share of the magazine. In actual fact the bulk of our main features tend to cover more serious topics, as well as there being serious reviews - as witness Issue 21's paint pack-

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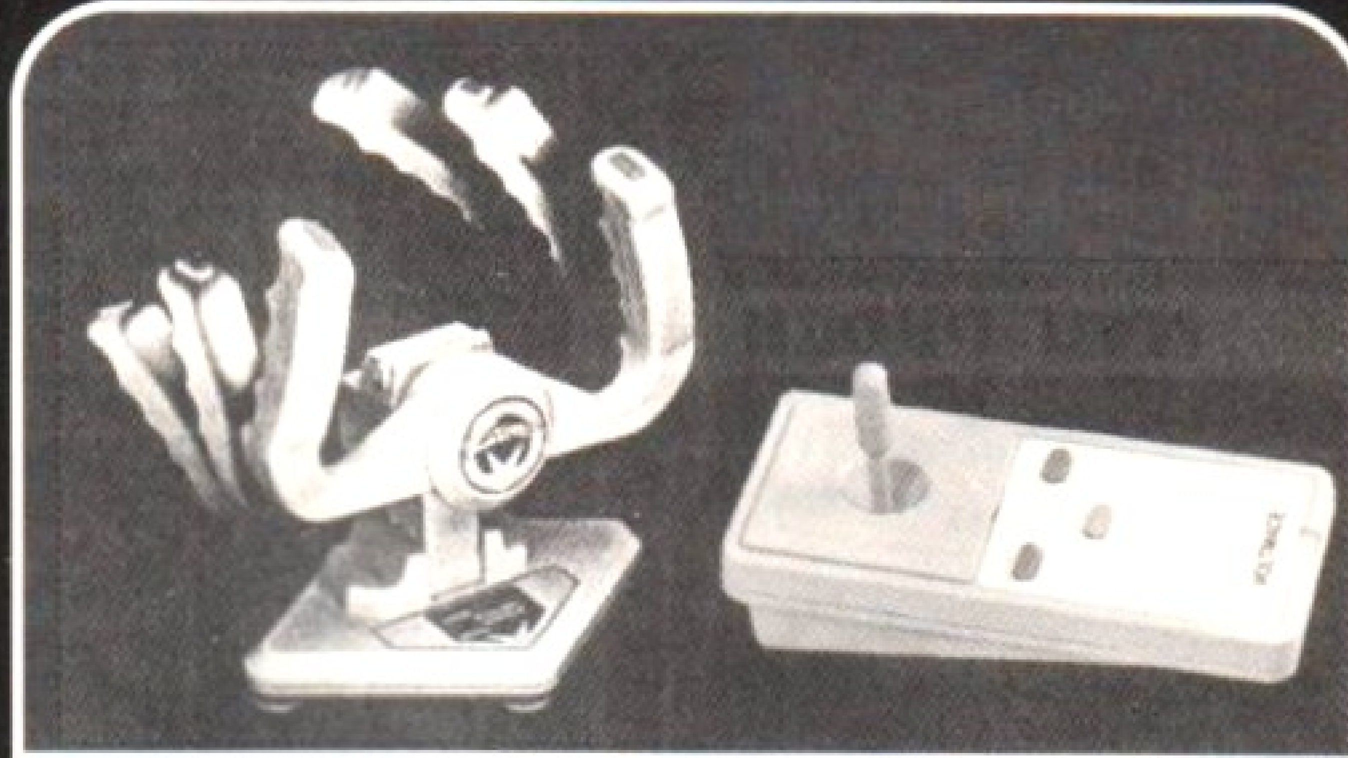
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age round-up, last issue's pieces on samplers, video digitisers and scanners and this issue's outstanding round-up of the best 3D graphics software.

We aim, at all times, to maintain a careful balance between the serious side of the Amiga and its lighter moments. This reflects not only the fact that most Amiga owners are incredibly versatile, but also that the machine itself is. the last thing we ever want anyone to do is settle down into a complacent acceptance that their particular favourite is the only sensible use for an Amiga, or even snobbery about it. Amiga owners, in our experience, are a darn sight more broad-minded, intelligent and adventurous than that...

Interviews with programmers and software houses.

Paul Wadland, Dover

Interviews came out lowest on the ratings of 'things you would like to see in Amiga Format and I can see why. With the greatest of respect to the guys and gals concerned, interviews with these people are not generally of an awful lot of interest unless they're on a particular subject. You don't really want to know what a programmer's favourite TV program is or what colour underwear he wears, do you? Generally, they speak through the games they produce.

On the other hand, the thing that you might want to get out of these people is the secrets of how they do what they do so well... isn't that a song? That's why the Assembly Line, MicroProse and Incentive have been interviewed in this very issue. As for the future, I don't think you can expect to see regular programmer interviews, but you can expect to see us tapping programmers for information.

Compos with shorter names.

Ben Lamb, Lowestoft

Yes, I can see why...

Percentages on a game's graphics, sound and playability. Addresses of clubs and small ads for things for sale.

Andre Dourado, London

We deliberately simplified the games rating system a few months ago because we felt it was more important to have a single, simple, precise and clear definition of how good the game is – the overall rating, now called the Verdict – and then to say more about the details in yer actual old-fashioned words. The reasons for this are twofold.

Firstly, if you have a system that requires you to produce a certain number of specific, categorical ratings it is often very difficult to assess a game that transcends those categories. For example a chess game might not make any use of sound but still be utterly absorbing: a puzzle game like Tetris needs no graphic whizziness, but it is still great. It seems unfair to give these a low rating for something they had no need of in the first place.

Secondly, we actually prefer to be able to describe things rather than rate them. We think that the little notes next to the Verdict give you a better idea of what a game is about and how good it is than any number of ratings would. And of course if a game's graphics and sound are particularly impressive, or particularly duff, then we'll say so.

I have noticed steady improvement each issue. Keep up the good work!

Brian Crawley, Retford

I've printed this one not because it's a compliment – although that's very pleasant! – but because one of the tenets of the magazine is that we always try to improve.

It could be geared a little more toward the beginner.

Marie Nash, Cullompton

We are not only planning to continue the special series for beginners, but also to restart it occasionally, so that we don't leave anyone behind, and to move it into different areas. You can expect a series on getting to grips with the Shell or CLI very soon.

Complete music on the Coverdisk, eg Brimble's Beat - excellent!

Anonymous

Await more news on this soon.

Double the space given to Workbench and Letters.

AH Foster, Southampton

Well, there's one heck of a lot of good reasons for that, not one of the least being that these appear to be the most popular parts of the magazine. We've just expanded the Workbench section by a regular page to allow us to introduce what we've called the 'Silly Questions' section, the idea of this being that people who are just starting out on the Amiga can ask the simplest of questions and others in the same situation can learn from the answers.

The only problem with expanding these sections further is that we have to retain some kind of balance within the magazine and we have to allow ourselves the space to do things properly, like this month's 3D graphics special. Perhaps greater quantities of these sections would mean lesser quality, which would be self-defeating? I don't know. If we do expand them, you're bound to notice.

Include a series of AMOS articles.

John Hughesman, London

Quite possibly.

What about having Joe public's opinion of games?

GR Mansfield, Hull

Yes, I've always liked the idea, but it can be tricky because of our deadlines. I'll try to think of something: possibly a Feedback section in Screenplay. And why not for serious software too?

DOC files on the disk could have a print feature.

Jeremy Mankin, Eaglescliffe

We're now using the more advanced text display program PPMore on every Coverdisk to display text files (DOC files). The advantage of PPMore is that you can print the DOC files from the menu bar which is located at the bottom of the screen.

Encourage graphics and music. Give help on viruses.

Ben Ritchie, Blackheath

I don't know exactly what you mean by 'encourage'. Do you mean give it more space? Graphics has had a big influence in Issues 21 and 23, but music, on the other hand, seems to be one of the least popular areas of the magazine in its current form.

What you may mean is actually encourage readers to make contributions of their own in these areas: which is an excellent idea, and one we are already working on. Issue 21's paint package special encouraged readers to send in their own artwork and we will be taking a look at these very soon. On the music side, we have rather ambitious plans to do something very similar.

As for viruses, we recognise that many readers are still very disturbed by them and we will continue to give help in this area. Expect more virus-busting advice and programs soon.

On each software review, please state whether it can be put on hard disk and whether it will work with faster processors.

Philip Andrews, Ipswich

Do you mean on serious stuff, game reviews or both? The only trouble is that with many things we can't test all the aspects (we'd have to have all kinds of machine configurations set up). otherwise it's a good idea and one we're thinking about.

Reviews of serious software are very shallow.

Adrian Brain, Croydon

The trouble is, as I've said time and time again, that we do not have the space to cover everything in complete depth. A review of a DTP package, for example, might easily take up seven or eight pages if you said absolutely everything. What we try to do in a page or so is summarise, picking out the interesting features of a program and giving our opinion on how well it works.

You could lower the price.

Steven Smith, Watford

And he's not the only one to suggest it: you cheeky lot! I'm afraid the price of Amiga Format has been £2.95 since it startde off and it's not about to change: but when you consider that's now two years at the same price, you're getting real value!

Those **Questionnaire Results** in Full!

There are 600,000 Amiga owners in the UK and more than one in six reads *Amiga Format*. The answers you gave to the questionnaire in Issue 19 reveal not only a lot about what you think of the magazine, but also a good deal about Amiga owners, what they do and what they like...

A magazine for all ages

The majority of *Amiga Format* readers fall into three age groups: 35% are between 13 and 18, 21% are between 18 and 24 while 28% are aged between 25 and 40. There's still a significant minority under 12 (5%) and aged 41 or over (11%) with just the odd reader over 60 (1%).

Sex and money

Predictably, 97% of you are male: where are all the women? As for who can afford to run an expensive Amiga: well, the majority (45%) seem to be at school or college and slip into the under £3,000 category.

The most significant group of wage earners are in the £10-15,000 group (15%), with the runner-up being £15-20,000 (11%) and then an equal split amongst the £6-10,000 and over £20,000 group (10% each).

Which Amiga, which hobby?

The vast majority of you, 93%, own Amiga 500s: which is not too surprising, really. What is surprising is that there are still more A1000s out there (2%) than there are A1500s (1%). 2000s account for a comfortable 3%.

As for what you spend most of your time on: well, games has to be top, with 53% of you doing it lots. Still, it's interesting to see that only 36% never ever touch business software and only 14% never get involved in music or art. See those figures below right...

Games mad?

The most convincing answer of all was to the question 'Will you buy games in 1990?' to which 90% of you said 'yes'. I think that's a pretty convincing vindication of our belief that however serious you are about your Amiga, you care about its more frivolous and entertaining side too...

Who owns what?

Most widely-owned piece of hardware is the joystick (93%) followed by a memory expansion (68%), a printer (56%) and a second drive (53%). Only 41% have a monitor.

As for buying plans, the most lusted-after add-ons follow a similar pattern. Printers come first (28%), followed by second disk drives (23%), extra memory (22%) and, very high on the wish-list, 21% of you plan to buy a hard drive in the next year.

Most common types of software are graphics, which 70% of you have, and word processors at 62%. Music follows swiftly after at 38%, then databases (35%), programming (33%) and spreadsheets (27%). The range of stuff out there is reassuring!

Big plans to buy for next year? Well, it may surprise you to know that top of the pops is DTP at 16%, with WP, databases, music, sound sampling, programming and education all not far behind.

Which bits of the mag are the favourites?

The section in which we asked you to decide which parts of the mag were the best and what you would like more or less of is shown in the tables, right. Clearly opinion is widely split between the games-players, who are more content currently, and the very vocal techie people who would like a bit more bias their way. As ever, we will try to maintain a balance.

Confirmed addicts

Each copy of *Amiga Format* is read by 2.35 people on average (exactly the average number of kids in a family, coincidentally!) which means that, at the current circulation of 105,000-odd, you are one of 245,000 *Amiga Format* readers. Wow!

When we started in August 1989, less than 20,000 people read the magazine. 19% of our current readers have bought all 19 issues, which means all those original readers are still with us. Nice to have you on board, you loyal lot!

Better still, when we asked how many issues we would buy next year, 91% of you said you would read all 12. Now that's addiction! So why do you buy *Amiga Format?* Well, 20% said for the tips, 19% said it's for the reviews, 19% said for the Coverdisk, but a massive 39% read the magazine simply because it's a good read! How nice that is to know...

And for the future...

When we asked what kind of features you'd like to see in the magazine, they were all popular except interviews (10%). Most popular first, the scores were: Programming 33%, serious software comparisons 33%, Games 31%, hardware comparisons 30%, Introductions 30%, Tutorials 28%.

The Top Ten most popular sections
(ratings out of 10)

Section	Rating
1. Workbench	7.16
2. Software reviews	7.08
3. Letters	7.04
4. News Pages	7.01
5. Hardware reviews	6.82
6. Previews	6.75
6. PD Update	6.75
8. Graphics	6.66
9. Screen Play	6.65
10. Coverdisk	6.55
Lowest: Music	5.35

'We want More' Top Ten

Section	%
1. Hardware reviews	59%
2. Software reviews	52%
2. Workbench	52%
2. Coverdisk	52%
5. Competitions	49%
6. Gamebusters	45%
7. PD Update	41%
8. News	40%
9. Previews	37%
10.Graphics	35%

'We want Less' Top Seven

Section	%
1. Adverts	33%
2. Music	27%
3. Screen Play	21%
4. Gamebusters	19%
5. Beginners	16%
6. Graphics	15%
7. PD Update	14%

How much do you use your Amiga for Games?

Lots	Quite a bit	Not much	Not at all
53%	28%	17%	1%

How much do you use your Amiga for art and music?

Lots	Quite a bit	Not much	Not at all
22%	38%	25%	14%

How much do you use your Amiga for business?

Lots	Quite a bit	Not much	Not at all
12%	25%	26%	36%

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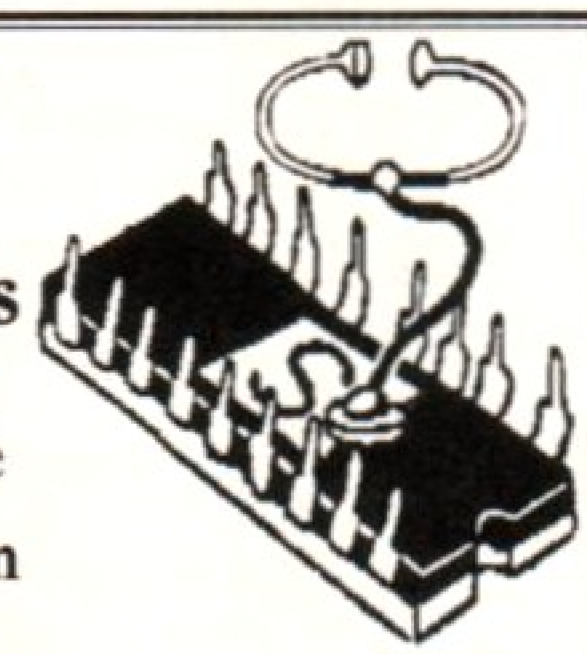
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Random Sample

A fruity melange of irrelevancies from the month in which AF23 was put together

SOUNDBYTES

"We apologise for the delay: we were waiting for a mechanical failure"

British Rail courting disaster and making Damien late, 12-04-91

Reception: "I've got a Mr Anti-christ on the phone…"
Damien: "Errm … crumbs! I suppose I'd better see what he wants, then. Hello, can I help you?"
Caller: "Hello, this is Andy Price here…"

Phone calls from the Devil, 07-04-91

"My mother always told me to have fingers in lots of pies, so if one dried up I'd have plenty of others to fall back on."

A famous female jazz singer gets slapstick on Radio 4, 02-04-91

Who Said That? 1



"When I hear the word culture, I reach for my gun" was said by Nazi air commander Goering, just before he ordered the air raid on Bristol in which the Monmouth Street area of Bath was destroyed. This is where our offices now stand. Weird huh?

The prize of a limited edition *AF* T-shirt goes to Ian Cain of Tilbury for this info: "Goering probably took it from the play Schlageter (1934) by Nazi writer Hans Johst, in which a storm trooper says "Wenn ich Kultur höre, entsichere ich meinen Browning." Others knew this too, like Michael Rose of Newbury who provides the translation "When I hear the word culture, I release the safety on my Browning (a type of revolver)" – but Ian wins for the following info.

"Did you know that Goering was probably the only man in history to have a prosthetic umbilicus? The poison which he took to avoid being hanged was concealed beneath a false navel."

Lemming Entries

The outstanding winner of the Lemmings competition in Issue 19 is Howard McWilliam of Malmesbury, whose excelllent Rodent Ranger is shown here .

Howard also sent a complete comic strip which we hope to print next issue. Runners-up, too numerous to list here, will hear by post.



Who Said That? 3

To win a special *Amiga Format* T-shirt, identify the quotation on the Contents pages and send an accurate, amusing or imaginative description of where it comes from to Who Said That? 3, *Amiga Format* at our Bath address before June 14.

Question

Lou Reed's "Down at the Arcade" from the album Mistrial mentions the arcade-game *Defender*. Anyone know of other games immortalised in song?

Soundtracks

HAPPY MONDAYS,
"PILLS 'N' THRILLS AND BELLYACHES"
PIXIES,
"DOOLITTLE"

BUZZ!

Nike Air 180 trainer animation adverts, but not Nike Air trainers.

THEME

Crime: Marcus had his house broken into and loads of gear stolen, Trenton got his nicked Austin Maestro back just when he thought he would get the insurance money. Together we'll crack it?

Winning Shoppers

Three winners of the Computer Shopper Show Treasure Trail who will get a free trip to the show to compete for the top prizes are: Judy Faulkner of Crowborough, N Berry of Frampton Cotterell and Michael Neale of Wakefield, all of whom got the correct answer of Land's End. Winning runners-up prizes of free tickets to the show are Curtis Vernon of Whitstable, WJ Wheeler of Ringwood, Len Warner of Littlehampton, MR Longman of Huddersfield, JA Moody of Spalding, Graeme Wilson of Whitley Bay, MJ McNeil of Rossshire (the only word in English with three 's's) G Maclellan of East Kilbride, Daniel Entwhistle of Wigan and Jamie May of Coulsdon.

SPOT THE SHOT 2

Win a special limited edition *Amiga Format* T-shirt by identifying the game that this is a small portion of and sending the answer on a postcard to 'Spot the Shot 2', *Amiga Format* at our Bath address before June 14.



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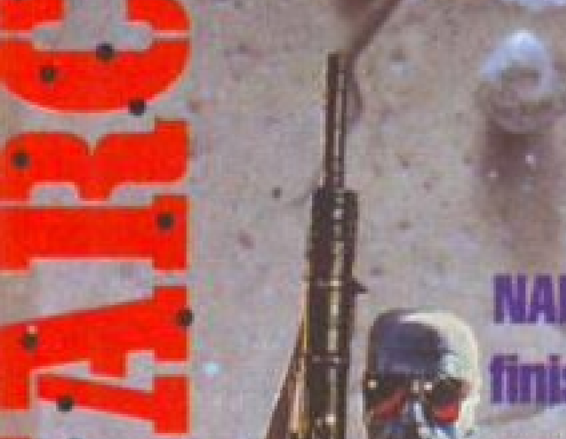
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GOING OV



NARC

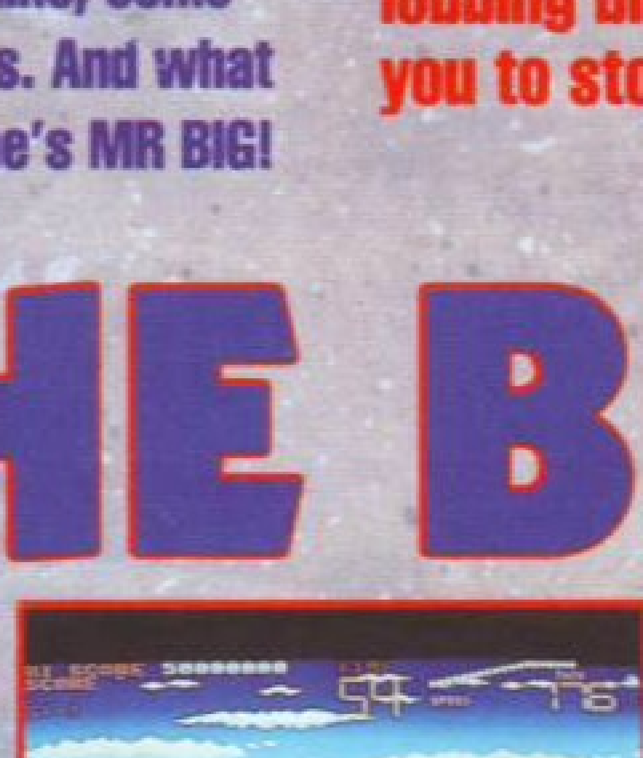
NARC The arcade action thriller with the BIG finish. Infiltrate the criminal underworld - your mission is to seek out and destroy the king pin of the MR BIG CORPORATION - if you get that far.
You'll have to outwit his enormous army of body guards... gangs of charisma-bypass patients in trench coats, the bullet brain with the build of a rhinoceros and the breath of a dung beetle, packs of vicious canine yappies, the psychotic clown with an evil sense of humour - you'll die, but not laughing! Then there's the gas guzzling cadillac jock - a cool specimen, elbow hanging on the door rail, a serious looking piece in his hand and ready to blow you away as he rolls down main street leaving you coughing lead. It's not all bad!... You've got a chopper to back you up, a mean, shiny street machine, some heavy metal hardware and some pretty neat moves. And what about the king pin... did I say he was Mr. Big? No, he's MR BIG!



The Arcade thriller takes you from the bright lights of Paris to the rugged terrain of the Sahara. Your mission is to track down, chase and apprehend the dangerous criminals. It's FASTER - explosive power sends you bulleting through various terrains - hold the line or plough the fields! It's TOUGHER - the criminals wield some heavy hardware - but so do you! You can shoot but you must dodge their flak... heavy gunfire, trucks unloading their cargo onto your bonnet... it's the meanest pursuit game to hit the micro screen.
The extra features will leave you gasping for extended play weather changes, bodyguard squads, grenade lobbing bikers, gun-choppers... just play it!... we dare you to stop!

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xperience the horror as your dreams turn into hideous ightmares. Suddenly your every move is monitored by would-be ssasins. You discover the surreal truth -

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u must travel to Mars to discover your true identity - your ission is now a journey of non-stop action, strange mutants, turistic vehicles and a startling array of weaponry all aptured in superbly executed graphics and a game play that ompliments the success of the year's top movie.



ROBOCOP 2

EVEN IN THE FUTURE OF LAW ENFORCEMENT, THERE'S ALWAYS ROOM FOR IMPROVEMENT.

The future is a rough place Detroit is a bankrupt city...torn apart by the decadent forces of the Old Man and his corrupt corporation. If you want to die - then walk the streets, if you want to live - then pray for the return of Robocop!

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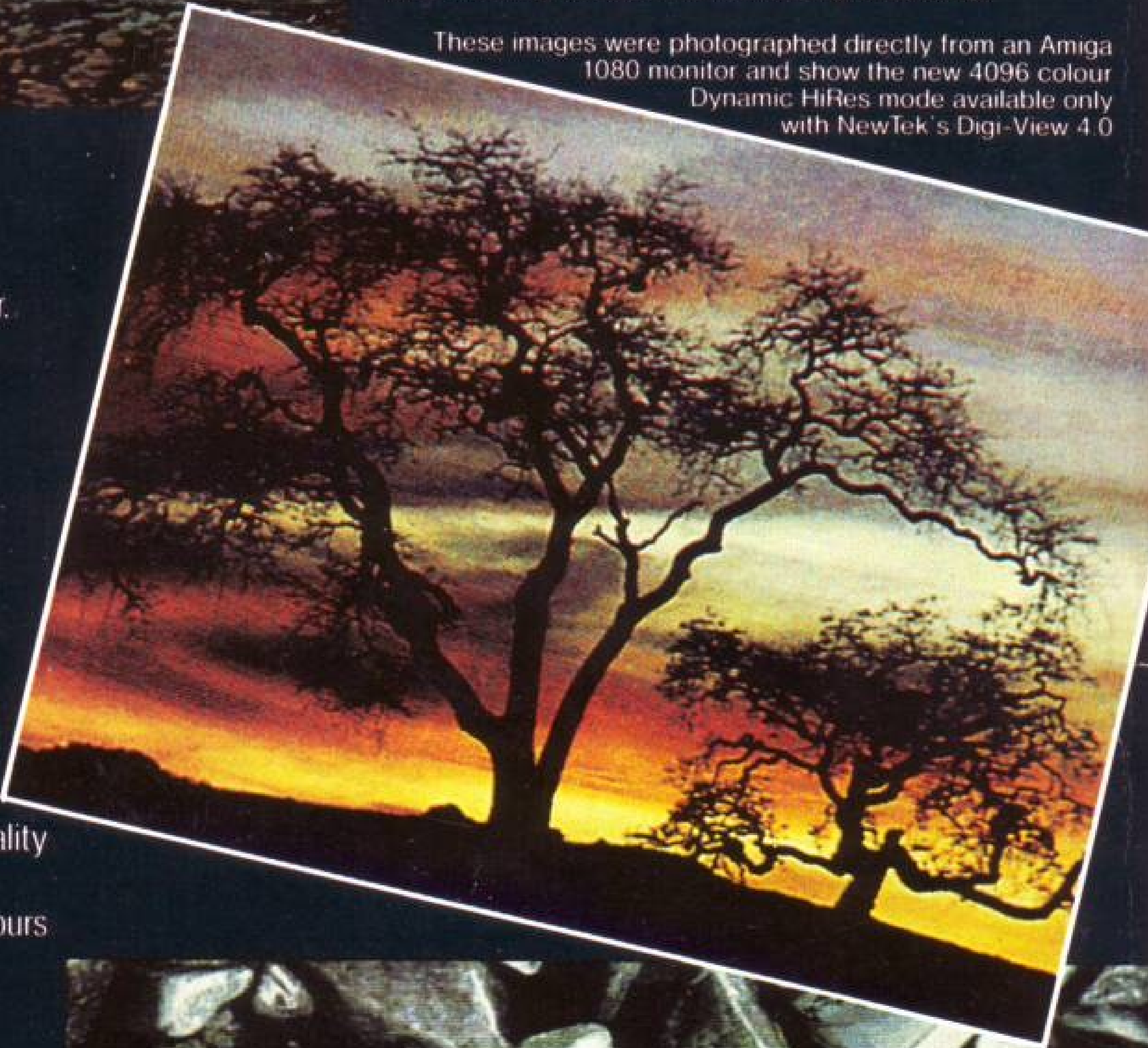
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